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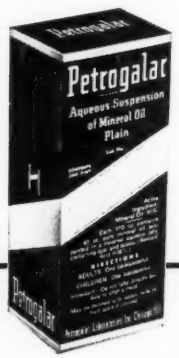

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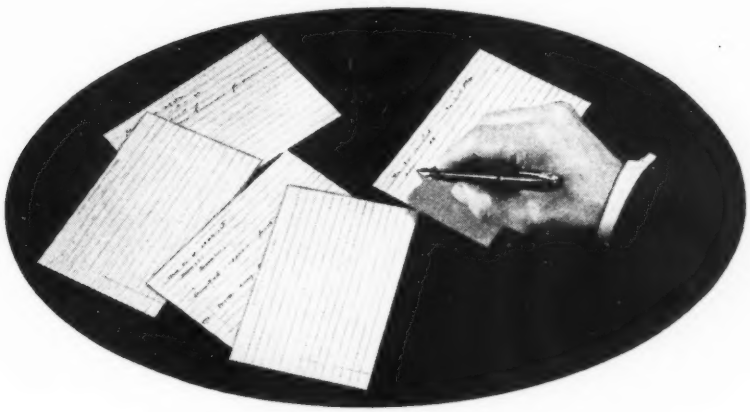

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***The Military Surgeon, Vol. 89, No. 1, p. 5, July, 1941*

****ibid. p. 5*

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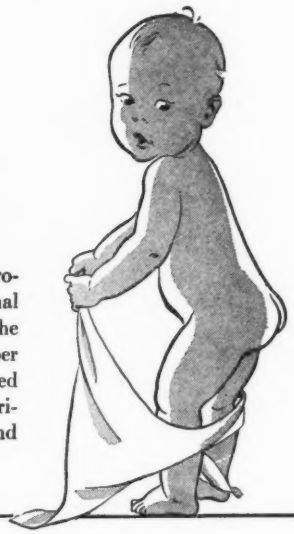

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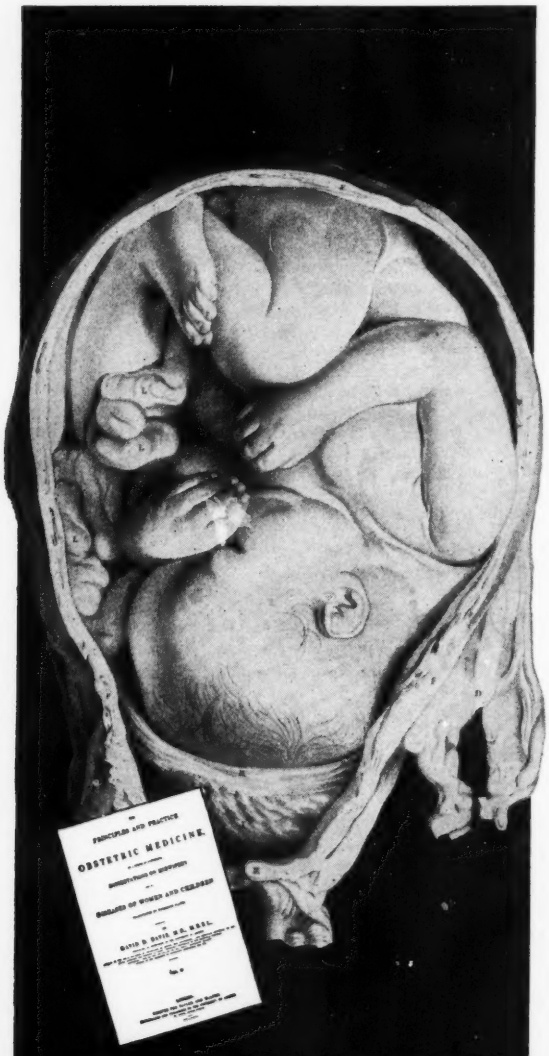

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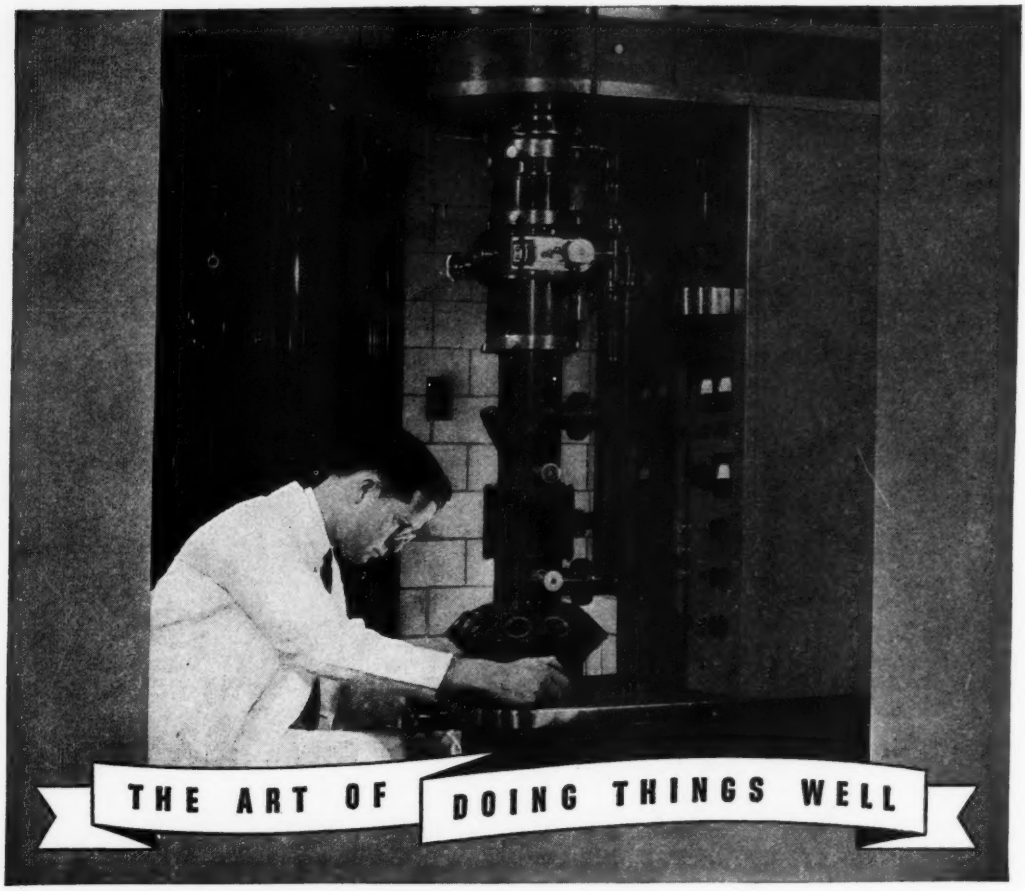

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INJURIES OF THE CHEST

DANIEL C. ELKIN, M. D.
ATLANTA

The danger from wounds of the chest is in a large measure due to the narrow margin of safety under which the thoracic viscera work. A rapid change of pressure relationships within the thorax affects the aeration of the blood, the filling and emptying of the heart, and the circulation not only of the thorax, but also of the whole body. A knowledge of certain fundamentals of the mechanics of respiration is, therefore, a necessary prerequisite for the surgery of this field. Injuries affecting these relationships may be rapidly fatal and are, in consequence, worthy of immediate and heroic action.

With the respiratory passages open and the lungs at rest, the pressure within the lungs (the intrapulmonic pressure) is the same as that of the atmosphere, but with inspiration and expiration certain changes take place. These changes vary greatly with the intensity of the respiratory movements and with the size of the opening to the exterior. Forced expiration with the glottis closed raises the intrapulmonic pressure. A crushing pressure applied to the chest, such as may happen in accidents, can raise it to such an extent that one or both lungs may be ruptured, even though the thorax is not penetrated.

The pressure within the thoracic cavity outside the lungs (the intrapleural pressure) is normally negative, because of the elastic recoil force of the lungs. It varies, too, with the depth of respiratory excursions. These changes affect not only the lungs but the whole cardiovascular system, since the intrapleural pressure, including that of the venae cavae as they enter the heart, is normally less than that of the atmosphere. If for any reason there is a change from a negative to a positive pressure, the filling and emptying of the heart are immediately affected.

Conditions are quite different with the thorax opened, and upon a recognition of these conditions are based the fundamental principles of most operative procedures within the thorax. If the opening in the chest is smaller than the larynx, the lung collapses, but on inspiration partial expansion occurs, and respiration in a patient with normal vital capacity is only slightly embarrassed. If the opening is larger than the laryngeal opening, air will enter more freely than through the trachea. The mediastinum will be forced toward the unopened side in inspiration and back toward the opened side in expiration. This condition, known as mediastinal flutter, probably subjects the heart and great vessels to varying degrees of positive and negative pressure. In addition, air passes from one lung to the other in useless exchange. All these changes may lead to rapid asphyxia. The first principle, therefore, in the treatment of a sucking wound is immediate closure of the opening, preferably by suture of the skin, or by temporary plugging with the finger or the hand, or by the application of moist gauze.

It must be borne in mind that with wounds of the chest as with those of the head the injury to the casing is of less importance than the damage of the underlying structures. A simple fracture of the skull may be of little or no importance, nor is a broken rib of great significance without injury to the heart or lungs. It may occasionally happen that there may be destructive lesions of the lungs with little visible trace of injury to the bony framework. It is difficult to draw a typical picture of an injury of the chest since the symptoms vary widely with the degree of shock and of bleeding. One syndrome common to all such injuries is that of shock and dyspnea. In cases of penetrating wounds of the chest, shock is usually instantaneous, but it differs somewhat from the shock which follows in cases of wounds in other parts of the body for in these cases mental apathy is apt to predominate. In cases of wounds of the chest, the mental condition of the patient is usually active and anxious.

The chief dangers in wounds of the chest are:

1. Mechanical dangers.
2. Hemorrhage.
3. Infection.

The main considerations in the treatment of all injuries of the chest are (1) the treatment of shock, (2) the arrest of hemorrhage, (3) the replacement of lost blood and fluids, (4) the restoration of the physiology and dynamics of the cardiorespiratory system, and (5) the prevention and treatment of infection and complications.

Whitehead Professor of Surgery, Emory University, Atlanta, Ga.

Delivered by invitation before the Sixty-Ninth Annual Meeting of the Florida Medical Association, Hollywood, April 14, 1942.

Thoracic injuries in civil life differ from those incident to war, and are less severe. In the former, a knife, an ice pick, or a pistol bullet is the usual weapon, and large sucking wounds, such as are made by schrapnel, are less frequently encountered. The lodgment of clothes, ribs and shell fragments, giving rise to serious infection, is therefore more rarely a complicating factor.

The present war, in which civilians have been subjected to heavy bombing, has emphasized another type of injury rarely observed in civilian practice. This is the so-called blast injury. Injuries of this kind are often serious and frequently fatal, and the cause may be defined as the compression wave which is set up by the detonation of high explosives. The outstanding lesion is hemorrhage from both lungs; the blood apparently originates from torn alveolar capillaries, the surfaces of the pleura and the lining of the bronchial tree. Such injuries usually occur without external evidences and, therefore, may be overlooked. Moreover, there is a discrepancy between the symptoms and the physical signs. The principal signs are dyspnea, cyanosis and occasionally the expectoration of frothy, bloody fluid. Those patients who survive the immediate effects of a blast injury usually pass through a period during which no injury of the lungs is suspected. The first indication that arouses suspicion of such an injury may be merely a cough, a rise of temperature, pain in the chest, increasing dyspnea or cyanosis. The extent of these symptoms is altogether dependent upon the area of lung involved. Within a week symptoms usually subside, and the condition entirely clears up. Roentgenograms are of value in that they show mottled shadows in the areas of hemorrhage. The patient should be kept warm and should be kept as quiet as possible with opiates; oxygen should be administered immediately and continued so long as cyanosis and dyspnea are present. Plasma or blood transfusion should be withheld unless there is a great degree of shock since it appears to increase the hemorrhage from the lungs by raising the blood pressure.

Pleuropulmonary lesions may be divided into those having (1) open wounds of the thoracic wall and (2) those having closed wounds. Open wounds are by far the more dangerous, the degree of danger depending upon the size of the wound, the amount of foreign material carried into the chest and the injury to the viscera. Such wounds should be carefully cleansed and debrided as soon as possible.

Chemotherapy should be instituted at the earliest possible moment in every case of this type, and large, dirty, lacerated wounds of the wall of the chest should be packed with sulfanilamide crystals. It must be borne in mind, however, that chemotherapy does not do away with the necessity of careful cleansing of the wound and debridement. When there is evidence of pulmonary hemorrhage from extensive laceration, it may be necessary to open the chest widely to control hemorrhage by suture of the lung. When the hemorrhage originates from the great vessels at the hilus, a lobectomy or pneumonectomy may be necessary for the control of bleeding. When the chest has been so opened and the lung sutured or removed, the pleural cavity should be carefully cleansed and tightly closed around an indwelling tube which is connected to under water drainage. The presence of infection (empyema) must be carefully watched for, and when it is definitely established, it should be treated as empyema arising from other sources. The presence of large foreign bodies such as schrapnel, rib, or clothing, predisposes to infection, and when possible they should be removed at the time of the original operation. For this purpose the roentgenogram is of inestimable value.

Pleuropulmonary lesions with a closed wound are more common and far less dangerous. They are usually caused by a knife or bullet, and the external wound has closed spontaneously, or has been converted into a closed lesion by suture. The main problem in the treatment of thoracic injuries in civil life is, therefore, concerned largely with closed wounds and the conditions arising from injury to the thoracic viscera. Treatment is always dependent on the symptoms exhibited by the individual patient rather than by a set rule. In the main, the treatment is conservative and nonoperative, although operation is carried out for wounds of the heart, for large lacerated wounds of the lung, for hemorrhage from an intercostal or internal mammary vessel and for compression pneumothorax.

Complications following fracture or any injury of the chest must be watched for and treated as they arise. The most common are (a) pneumothorax, (b) atelectasis, (c) emphysema (d) hemothorax, (e) contusion and hemorrhage into the lung, (f) traumatic asphyxia, (g) paralytic

ileus and (h) empyema.

Traumatic asphyxia is due to violent but temporary compression of the chest. Two types are recognizable. The more common and more serious is characterized by short, uneven respirations. There is a general pallor of the face and neck with areas of purplish discoloration. The pulse is weak but fast, and the skin is cold and clammy. Often the patient is unconscious or stuporous. The treatment is that of shock, and the administration of oxygen. If the patient recovers from shock, the prognosis is good. The more rare and less serious type is characterized by ecchymosis of the face, neck and upper part of the chest. It is caused by compression of the chest, with a sudden rise in the intrapleural pressure, which collapses the veins of the mediastinum and forcibly ejects the blood into the valveless veins of the neck and head. There are subconjunctival hemorrhages, exophthalmos and hemorrhages into the skin. If this condition remains uncomplicated, recovery takes place in from seven to twenty days. Treatment is supportive with inhalation of oxygen.

Injuries of the lung and pleura may produce two types of emphysema, (1) subcutaneous and (2) mediastinal. When the lung is torn and a tension pneumothorax develops, air may be forced through an opening in the parietal pleura into the subcutaneous tissues of the thoracic wall, or even over the greater part of the body.

The majority of cases of subcutaneous (interstitial) emphysema require no treatment other than that of the injury of the chest. If the wound in the lung is valvular and the emphysema spreads rapidly, it may be necessary to explore the wound and close the opening in the pleura. Sometimes suturing the intercostal muscles together tightly will suffice, or inserting a needle or trocar into the chest and withdrawing the air. Rarely is it necessary to resort to multiple incisions to relieve the tension.

Emphysema of the mediastinum is rare. If the lung is injured internally, air may be forced along the peribronchial and perivascular tissues to the mediastinum. In cases in which the trachea or large bronchi are injured, there will probably be extensive mediastinal emphysema, which may greatly embarrass respiration and produce death unless the pressure is relieved. The symptoms are those of crepitation over the suprasternal notch and cardiopulmonary distress; also, roentgen examination gives evidence of air in the mediastinum.

The treatment of mediastinal emphysema depends on the amount of tension present. Some cases can be left alone entirely. Some can be successfully treated by aspirating the air from the pleural cavity and relieving the tension in the mediastinum. Others have to be treated by making an incision over the suprasternal notch and allowing the air to escape through the opening. If the latter becomes necessary to prevent collapse of the intramediastinal vessels or trachea, then great care must be taken not to produce infection and mediastinitis. Where a large bronchus is torn, suture of that structure may be necessary.

Tension pneumothorax is a type of valvular pneumothorax; that is, the valvelike tear in the lung allows the air to enter the pleural cavity, but prevents its escape. The closed type is seen in cases in which the lung is ruptured by external compression when the glottis is closed. The symptoms are shock, cyanosis, dyspnea and shifting of the mediastinum. If the injury of the lung involves the mediastinal pleura, mediastinal emphysema may result, and may progress to such an extent that crepitation can be felt in the suprasternal notch.

Tension pneumothorax can be rapidly fatal and should be treated immediately. The best and simplest method of treatment is to allow the air to escape through a large needle inserted into the pleural cavity and connected with a rubber tube that is trapped under water. Uncomplicated pneumothorax without tension requires no treatment other than keeping the patient semiupright in bed for a few days, because air is rapidly absorbed by the pleura.

Blood may collect in one or both pleural cavities following any thoracic injury. Most penetrating wounds of the chest are followed by the accumulation of blood in the pleural cavity, varying from an imperceptible amount to several liters. There are several sources from which the blood may come. Often it comes from the injured lung. It may also come from severed intercostal vessels, internal mammary vessels, the azygos veins, the heart, or even injured abdominal viscera if the diaphragm has been penetrated. The extent of the collapse of the lung and, therefore, the degree of dyspnea depend upon the amount of blood and air in the pleural cavities. Many cases of hemothorax are accompanied by varying degrees of pneumothorax.

The treatment of hemothorax depends upon the severity of the hemorrhage and its source. If the bleeding is from an intercostal or internal mammary vessel, the vessel should be ligated immediately. If the hemorrhage is from the lung, bleeding will usually continue until the intrapleural pressure rises high enough to serve as a tamponade, which stops the bleeding.

If the extent of the hemorrhage is not great enough to produce distressing respiratory symptoms and is not steadily increasing in amount, then it should be left alone. In such cases the patient should be placed in a semiupright position to facilitate respiration and should be given sufficient morphine for rest. Morphine not only makes the patient more comfortable, but is valuable in controlling further hemorrhage by decreasing physical and respiratory movements, thus allowing quicker clotting at the point of hemorrhage.

Whenever possible, the blood should be left in the chest. If the blood is withdrawn, the lung will reexpand, and hemorrhage may start anew. Instead of decreasing the chances of empyema, aspiration will increase them because it is an added avenue of entrance for bacteria. In over 95 per cent of the cases the blood is readily absorbed. The only indications for aspiration are severe dyspnea and pain.

If hemorrhage is sufficient to cause distressing respiratory difficulty, then thoracentesis must be performed and enough blood withdrawn to bring about comfort. It is best to replace the blood withdrawn with the same amount of air to maintain sufficient intrapleural pressure to prevent further hemorrhage from the injured lung. If hemorrhage persists in filling the chest, it may be necessary to open the thorax and control the hemorrhage with ligatures or packs. Several transfusions may be necessary. It must be borne in mind that the danger of infection in war wounds is far greater than in those occurring in civil life, and for this reason many advocate aspiration of any blood from the pleural cavity. Moreover, in war wounds, produced by larger missiles and with greater tissue injury, operative intervention is more frequently indicated.

Chylothorax results from damage to the thoracic duct as it passes through the mediastinum. It occurs infrequently and may easily be mistaken at first for empyema, as the fluid is gray and sanguineous. This condition appears from one to three days following an injury of the chest and soon produces respiratory distress which rapidly increases, making aspiration necessary. If the aspirated fluid is allowed to stand, it will separate into an upper milky and a lower bloody layer. Analysis of the fluid reveals that fat is present.

Prognosis is grave as only about 50 per cent of the patients survive. Death may be due to suffocation and cardiac failure as a result of the massive effusion. If delayed, death is the result of inanition and emaciation.

Treatment is chiefly that of repeated aspirations. The frequency of aspiration depends on the amount of the effusion and the occurrence of respiratory embarrassment.

Crushing injuries of the chest frequently occur as a result of automobile accidents. Many are immediately fatal and are due to rupture of the heart, lungs or great vessels as a result of compression, or penetration of the viscera by the sternum or broken ribs. Little attention has been paid to nonpenetrating cardiac lesions which are not fatal. Certainly there is no reason to believe that the heart, situated as it is between the sternum and the spine, is not subject to contusion of considerable severity and from which recovery takes place in the majority of instances. The most common cause of such an injury is that in which the driver is suddenly thrown forward against the steering wheel; the sudden compression may injure the heart without fracturing the sternum or ribs. In any patient who is struck in the chest such an injury should be suspected, particularly if symptoms of precordial pain, dyspnea and tachycardia are present. Persistence of these symptoms, together with irregularity of the heart, cyanosis and a peculiar "tick-tick" quality of cardiac sounds, makes the diagnosis almost certain. The treatment is entirely symptomatic. The chief reliance is to be placed on morphine for rest, and on oxygen for dyspnea and cyanosis. The patient should be confined to bed until all symptoms have subsided.

In crushing injuries of the chest several ribs may be fractured at two or more points resulting in the so-called "stove-in" chest. This type of injury occurs usually as a result of automobile accidents, or is caused by falling timbers or walls as, for example, following bombing. Because of the lack of support by the ribs the wall of the chest becomes depressed on inspiration and bulges during expiration. This paradoxical respiration

is similar to that observed in open pneumothorax and may be equally as dangerous. The treatment consists of immobilization by strapping. It must be borne in mind that an injury of this type may carry with it injury of the underlying pleura or lungs.

Perforation of the diaphragm, with or without abdominal injury, may result from various types of thoracic injuries and it occurs probably more commonly than is realized. Unless there is an accompanying abdominal injury, in many cases the condition may go for weeks or even months before being recognized. Probably many cases are never recognized if the perforation is small or incomplete.

There are no distinctive early symptoms unless there has been abdominal damage. Later the symptoms of the diaphragmatic hernia develop. Treatment is symptomatic. The injury of the chest must be treated according to what damage has been done. If signs and symptoms of perforation of an abdominal viscus are present, an exploratory celiotomy must be performed and the damage repaired. Crushing injuries, bullet wounds and wounds from long knives are the most common causes of thoracoabdominal injuries in civil life.

It is frequently difficult to decide whether or not the thoracic injury alone is responsible for all symptoms since injury to the thorax may by reflex action produce abdominal signs. Rigidity is not necessarily an indication of abdominal injury, but when it occurs, a careful watch should be made for increasing dulness in the flanks, difficult respiration so frequently noted in diaphragmatic injury and hematuria. With injury of the diaphragm and herniation of the stomach into the chest, dyspnea and tachycardia occur, and the patient complains of pain in the neck and shoulder.

Penetrating wounds of the heart are usually produced by stab or bullet. Approximately 2 per cent of penetrating wounds of the chest injure the heart.

Symptoms of exhaustion, collapse, cessation of bleeding from the external wound and frequently unconsciousness are due to tamponade and loss of blood. When the heart is wounded, it usually bleeds freely into the pleural cavity or to the outside. At the same time blood collects in the pericardial sac. When from 100 to 200 cc. has collected, the pericardium becomes distended, the intrapericardial pressure rises, and the venae cavae can no longer empty normal quantities of blood into the heart. The heart being unable to fill to capacity, can no longer empty, and cerebral anemia results.

To aid in the diagnosis, the venous pressure should be taken, and the heart should be viewed through the fluoroscope. Under the fluoroscope, the normally active cardiac shadow is seen to be motionless, or its amplitude greatly reduced. The normal venous pressure is 75 to 125 mm. of water, but in cases of tamponade the venous pressure may rise as high as 400 mm. of water and still be compatible with life, if the pressure is not maintained for too long a period. In summary, a lowered or falling arterial pressure, a high or rising venous pressure, and the absence of cardiac pulsations by fluoroscopic examination make the diagnosis of tamponade practically certain.

Operation should be carried out as soon as the diagnosis is established. To hasten and facilitate the operative procedure, all necessary instruments should be kept ready in a separate container. Since infection of the pericardium and pleura is a frequent complication, meticulous care in preparation and technic should not be sacrificed for speed. While preparations are being made, sufficient morphine should be administered to insure rest and quiet. The head should be lowered, and the body should be kept warm. Theoretically, intravenous infusions are of little value so long as tamponade is present, but when excessive hemorrhage has occurred, they are indicated. The administration of plasma may be life-saving, and autotransfusion of the blood removed during the operation should be administered when possible. Blood transfusion should be undertaken as soon as possible after the release of tamponade. For this purpose the blood or plasma bank is an invaluable aid.

Anesthesia—Inhalation anesthesia is preferable to local anesthesia. The pleura may have been opened by the wound, or may be accidently opened during the operation, and nitrous oxide and oxygen under positive pressure are necessary for the inflation of the lung. The difficulties of cardiac suture require that the patient be quiet, but patients requiring this measure are usually wildly excited, or are apt to become so with the release of the tamponade. Unless they are completely anesthetized, their struggles may interfere with the operation at a most inopportune time.

Suture of the Heart—The incision should be

so planned as to give the best exposure with the least trauma when it is necessary to suture the heart. It must also be made with some consideration as to the position of the external wound. Although the pleura is usually injured when the heart is wounded, further tearing of this membrane should be avoided if possible, for it adds greatly to the shock of the patient. For this reason dissection of the pleura from the pericardium is best begun in the fourth or fifth left interspace because of its lateral reflection at that point. It is of importance to remember that the costomediastinal lines of pleural reflection vary greatly; thus either the left or right pleura may cross the middle of the sternum.

Unless the skin wound is well to the right of the sternum, the approach to the heart should always be made on the left, and the incision should be so planned that it can be readily enlarged if the cardiac wound is not easily located. With these factors in mind, experience has shown that a long transverse incision extending well across the sternum gives the best exposure. The pectoralis major muscle is separated in the direction of its fibers and can easily be retracted from the surface of the ribs. Dissection should begin well out on the rib, which can be easily lifted from its periosteal bed and cut without injuring the pleura. The internal mammary vessels are ligated and cut, the triangularis sterni muscle is divided, and the pleura is displaced outward by careful gauze and finger dissection.

A second incision, and one giving excellent exposure, consists of turning a musculocutaneous flap laterally and removing two or more costal cartilages and ribs. It requires more time to open and close the wall of the chest and is more likely to induce shock.

The intercostochondral thoracotomy (Spangaro) offers a rapid approach to the heart, but not a particularly good exposure. It can be enlarged by cutting or removing the cartilages above and below the incision and by removing a portion of the sternum.

The pericardium will be tense, bulging and blue, and its pulsations will be weak and imperceptible. If the wound in the pericardium is seen, it should be enlarged, or, if not readily found, it is opened between stay-sutures of silk. Occasionally, the cardiac wound can be located before the blood and clots are removed and before the heart starts bleeding profusely. If it is not immediately seen, the blood and clots are removed by suction. When the intrapericardial pressure is relieved, the bleeding becomes profuse, as the contractions of the heart increase in force. When the wound is located, and it is most often found in the right ventricle, its closure is facilitated by placing the left index finger over it. In this way the bleeding will be impeded sufficiently to allow the passage of a suture directly under the finger. This is left untied for the moment and is held in the left hand for traction and hemostasis while other sutures are placed and tied. They should pass well into the substance of the muscle, but not into the chamber of the heart. Fine black silk on curved calix-eye needles is the material of choice.

Should the wound be behind the sternum or on the posterior surface of the heart, a stay-suture passed through the apex, as advocated by Ballance and by Beck, may be of great value. By this means the heart may be rotated into such a position that the wound may be more easily sutured.

Intrapericardial wounds of the great vessels will produce the same symptoms of tamponade as wounds in the cardiac muscle itself. They are difficult to close because of the thinness of the structures. If the wound is in the pulmonary artery or aorta, the hemorrhage may be checked by passing the Trendelenburg probe behind it and thus impeding the flow of blood until the sutures can be placed.

Injuries to the coronary vessels may require ligature, but are not necessarily fatal. I have found it necessary to ligate a major coronary vessel in three instances. All three of the patients survived. When bleeding is so profuse that the wound cannot be located, it is sometimes necessary to resort to the procedure of Sauerbruch. In this, the venae cavae are grasped between the middle and ring fingers of the left hand, and the first finger and thumb are left free to compress the cardiac muscle. Needless to say, such a compression can be carried out for only a few minutes. During the course of any cardiac operation fibrillation of the heart may occur, or it may even stop beating, especially when traction is applied, or direct compression or kinking of the great vessels is employed. Should fibrillation or cessation of the beat occur, the operation should be momentarily stopped until normal contractions are resumed. The injection of 1 cc. of 1:1,000 solution of epinephrine directly into the cardiac muscle is frequently of value in restoring contractions.

Gentle massage by pressure between the index finger and thumb will likewise often restore the beat.

The pericardial cavity is loosely closed with interrupted sutures of silk, and sufficient space is left between the sutures for the escape of any fluid which may accumulate. The muscle, fascia and skin are then closed without drainage.

After the operation the patient should be placed in an oxygen tent. Fowler's position will usually facilitate breathing. Morphine should be administered in sufficient amounts to insure rest and quiet. Since the pleura and lung are often injured at the time of the injury to the heart, hemopneumothorax is frequently present. If its extent is such as to cause embarrassment of respiration, aspiration of the chest should be done, but in the absence of symptoms it is better to allow absorption of the air and blood.

Prognosis—The immediate prognosis depends largely on the interval between the injury and the operation. Delay may cause death from hemorrhage, or tamponade, or both. It likewise depends upon the character and extent of the injury. A bullet usually causes two wounds, with greater hemorrhage and loss of tissue, and the injury rapidly becomes fatal. The postoperative prognosis in cases of this type is largely dependent upon infection. Purulent pericarditis is apt to follow these wounds, which are necessarily contaminated and which may carry with them bits of clothing or other foreign material. Pneumonia resulting from injury of the lung, or as a part of the generalized infection, may likewise follow.

Fifty patients with cardiac wounds have been operated upon by me or my resident staff. Of these, 34 recovered, and none of them has residual symptoms referable to the injury. All of the wounds were produced by a knife or an ice pick except one, which was caused by a bullet. In no instance was operation not undertaken because of the patient's condition. This statement means that in several instances the condition of the patient was so serious that there was practically no hope of recovery. In the case of one patient who was operated upon, the diagnosis proved to be incorrect, and it is only fair to say that some of the patients may have died with cardiac wounds upon whom an operation was not performed.

SUMMARY

1. The treatment of chest wounds is in the main conservative, being directed toward (a) the arrest of hemorrhage and the replacement of lost blood, and (b) the restoration of the normal physiology and dynamics of the cardiorespiratory system.

2. Active and immediate operative procedures are indicated in sucking wounds of the chest, persistent hemorrhage, tension pneumothorax and penetrating wounds of the heart.

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DIAGNOSIS OF ENDOCRINE DISORDERS IN GYNECOLOGY, OBSTETRICS AND GENERAL PRACTICE

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The scope of this paper is one which has been avoided by most busy practitioners because of the necessity of conducting elaborate technical tests. I shall mention some of the classical types of endocrinopathies so that their existence can be recognized and the need for diagnostic tests appreciated. After a confirmatory diagnosis, specific therapy may be carried out.

There are innumerable causes of obesity, both exogenous and endogenous. Successful treatment in one case will meet with utter failure in another. With the introduction and use of diagnostic endocrine procedures, it is possible to establish the etiology in endogenous obesity, thereby differentiating it from exogenous obesity.

Similarly, secondary amenorrhea may be due to innumerable causes, and unless the correct diagnosis is made, therapy usually proves futile. This observation holds true of many of the conditions which the physician sees and which often prove resistant to treatment. They include menstrual disorders, sterility, cachexia, obesity, vasomotor disturbances, dwarfism, dermatitis, asthenia, essential hypertension and diabetes.

In the light of present knowledge, the human body contains seven endocrine glands: the pituitary, thyroid and parathyroid glands, the pancreas, the gonads (ovaries and testicles) and the adrenals. These glands may function normally; there may be hypofunction or hyperfunction. It is therefore possible to have "N" to the third power (N3) or 4,000,000 differenent endocrinopathies when N represents the number of glands

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and 3 represents normal function, hypofunction and hyperfunction.

This multiplicity probably offers the reason why there are more therapeutic nihilists in this field than in almost any other in medicine. The difficulties of establishing a specific diagnosis and carrying out proper therapy, and the chronic nature of most of the endocrinopathies have discouraged investigators from devoting themselves seriously to obtaining a working concept of this field. Further discouragement is met with when one encounters some 3,000 papers written yearly on the subject of endocrinology, many of them contradictory. It is not because of their lack of authenticity that contradictions arise, but because of some modification or variation in their study, in the therapy advocated, or in the drug used.

It is only by recognizing these drawbacks that endocrinology will eventually emerge into a precise branch of medicine. One has merely to take cognizance of what has already been accomplished in the treatment of diabetes mellitus, cretinism, myxedema and Addison's disease to realize the rapid strides that have been made in recent years.

Only a few decades ago Zondek and Aschheim[1] observed that the urine of pregnant women contains a substance which they designated as prolan. This substance is capable, they noted, of producing pseudopregnancy in infantile rats and mice in seventy-two hours. These authors demonstrated convincingly that prolan is a specific hormone and resembles the gonadotropic hormone eleborated by the pituitary gland.

Since their disclosure, much has been accomplished that has led to the isolation of other hormones and the demonstration of their function. Allen,[2] and Allen and Doisy[3] observed that the normal female rat goes through a sexual cycle that in many respects resembles the normal human menstrual cycle. They proved that this cycle is under the influence of the ovary by abolishing the cycle with castration.

Frank and Goldberger,[4] utilizing this principle, determined that if pregnancy urine is injected into castrated rats, the vaginal smear shows changes which indicate that the animal is in estrus. They then concluded that there is in pregnancy urine an estrogenic hormone. Doisy, Veler and Thayer[5] subsequently isolated this hormone, identified it as ketohydroxyestrin and gave it the name of theelin. These authors, together with Loewe,[6] demonstrated the presence of estrin in circulating blood.

In 1932, Collip[7] and his co-workers identified an estrogenic principle in the placenta as estriol, which is water-soluble. Corner and Allen[8] prepared an extract of the corpus luteum of the sow which produced a secretory endometrium in the castrate rabbit and prevented abortion in pregnant animals after castration. The active principle of the corpus luteum was isolated in 1934 by several groups of workers.

In 1926, Smith and Engle[9] demonstrated the existence of a gonad-stimulating function of the pituitary gland. Engle,[10] in 1929, showed that the gonadotropes found in pregnancy urine and those extracted from the anterior pituitary are not the same, because the former are not effective in hypophysectomized animals. Friedman[11] produced ovulation in the isolated virgin rabbit by the intravenous administration of pregnancy urine. This procedure furnished the basis for a simple and rapid pregnancy test.

Fluhmann[12] revealed the presence of an anterior-pituitary-like substance in the blood of pregnant women, but was able to demonstrate its presence in normal menstruating women only in a few cases.

Frank, Goldberger and Spielman,[13] extracting large quantities of blood, demonstrated the presence of the chorionic gonadotropic hormone (A. P. L. or prolan B) in the blood of normal menstruating women from six to nine days following the onset of the previous period. Fluhmann[12] demonstrated prolan A, the follicle-stimulating hormone, in the blood of women with ovarian deficiency due to menopause or castration. This substance is effective, he observed, in stimulating the ovaries of hypophysectomized animals.

A number of investigators, among them Kurzrok,[14] Wilson and Kurzrok,[15] Frank, Goldberger and Spielman,[13] and workers of the Endocrine Research Institute of Philadelphia,[16] showed that in normal menstruating women definite quantitative levels of prolan could be exhibited in urine postmenstrually and that definite quantitative levels of estrogen could be demonstrated in urine premenstrually. They also noted that these levels could serve as a guide in arriving at the status of pituitary and ovarian function. In a recent paper Segal, Steinberg, Shechter and Colton[17] correlated the endocrinopathies with the menstrual disorders.

Utilizing these tests for prolans and estro-

gens, investigators of the Endocrine Research Institute[16] established the normal average excretion of prolan at 50 rat units and that of estrogen at 75 rat units every twenty-four hours. By employing these hormone assays it is possible to determine whether there is dysfunction primarily in the ovaries, in the pituitary or in another gland. It is generally accepted that all of the ductless glands are interrelated and that a disturbance of one causes an imbalance in all the others. Hence, it is important to establish which of the glands was initially responsible in order to correct the malfunction and reestablish normal physiologic function.

It is now properly realized that endocrine treatment should not be given on an empiric basis because the possibility of exaggerating the endocrinopathy would be too great. For instance, if estrogen therapy were given in a case of hypopituitarism, such as Simmonds's disease, it would produce an even greater atrophy of the pituitary and an exacerbation of symptoms. Insulin given in this disease to stimulate the appetite could precipitate sudden death. Similarly, if gonadotropic hormones were administered to persons with hyperthyroidism, their condition would become worse, and if androgens were administered in a case of infantilism, permanent irrevocable dwarfism would result due to premature closure of the epiphyses. By means of the hormone assays, it is possible to determine which hormone is lacking and in what quantity, and thus to administer the substance accordingly.

My observations and conclusions, coinciding with those of Steinberg,[16] are that in the majority of instances in dysmenorrhea, oligomenorrhea, hypomenorrhea and premenstrual tension there is an associated hypopituitarism which, if properly treated, results in a favorable response in from 50 to 70 per cent of the cases. Amenorrhea has been encountered most frequently in hypogonadism, and menorrhagia often in hypothyroidism. Hormone assays conducted in all of these conditions are of considerable value in establishing a diagnosis and criteria for therapy.

Hormone assays are of inestimable value in the diagnosis and treatment of sterility in both men and women. The presence or absence of cyclic changes in the ovary and pituitary function can be ascertained. The cause of aspermia and oligospermia is easily revealed. If one utilizes the results of these assays, considerable success is experienced in the treatment of these conditions.

A differential diagnosis between Fröhlich's syndrome, hypothyroidism and simple exogenous obesity in the child can be made and proper treatment administered in sufficient time to restore normal function. The dreaded Simmonds's disease or pituitary cachexia is readily differentiated from anorexia nervosa, the distinction often resulting in the saving of a life. Women who habitually abort are adequately treated and maintained safely through the period of gestation by applying the results obtained through these procedures.

It is highly probable that the hormone assay would be more generally employed as are the tests to determine the basal metabolic rate, glucose tolerance, blood-urea clearance, blood cholesterol and many other tests if the procedure were not so complicated. I firmly believe that when this test is more generally employed and accepted, many refractory cases of obesity, sterility, amenorrhea, hypomenorrhea, menorrhagia and menopause will prove to be responsive to therapy. By repeated androgen assays, there is presented the interesting problem of predicting the sex of the unborn child from six months on.

DISCUSSION

More important here than in most other divisions of medicine, a proper diagnosis of endocrine disorder must precede rational and successful therapy. Such a diagnosis can be reached only through a searching specialized history and a thorough physical examination in conjunction with all pertinent laboratory data. No one clinching test or observation is conclusive. This principle applies as well in the evaluation of the hormone assays, except in certain isolated cases.

It cannot be denied that the number of potential endocrinopathies arising from the known ductless glands is stupendous. A diagnosis must necessarily be made long before the appearance of the classical picture. Close[18] pointed out through his routine autopsy studies the tremendous proportion of unsuspected specific pituitary cell hyperplasias.

Time-consuming and prolonged therapy, even under the most favorable circumstances, is not infrequently necessary before beneficial results are obtained. In addition, medication is expensive, and the economic strain on the patient may be prohibitive. These are reasons why the nigh universal pernicious practice of "shotgun" therapy of inadequately investigated and incorrectly diagnosed endocrinopathies must be discarded. Powerful synthetic and natural hormonal preparations

have been placed in the hands of the physician. He must be eager to use them, yet cautious in administering them.

SUMMARY

A brief historical background and the recent advances of present day clinical endocrinology are presented.

The importance of proper diagnosis and biologic assays preceding therapy in the various endocrinopathies is discussed.

The dangers and failure of treatment of certain endocrinopathies on an empiric basis are emphasized.

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THE STUDY OF CONCHOLOGY AS A FORM OF OCCUPATIONAL THERAPY

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Several years ago a very successful psychotherapist, Dr. George A. Waterman of Boston, directed my attention to a hobby, or special interest, that could be easily used as an adjunct to psychotherapy in the private or institutional practice of psychiatry. For a long time Dr. Waterman himself has been a conchologist of more than amateur standing and he owns a beautiful and impressive collections of shells. As he told me in detail how he had used the shells in his therapy, I was impressed by the artistic skill he had developed as a person, as a collector and as one who had learned how to direct the energies of the mind and use the resources of any situation toward helping persons become happier and better adjusted, especially those whose troubles were emotional in origin, men and women who were anxious, depressed, introspective, worried, apprehensive, irritable and contrary.

Dr. Waterman showed me not only his shells but his patients and their activities. I visited him in Brooklin, Maine, and in Palm Beach, Florida, and saw him actually at work. His methods in themselves were so personal and so individually variable as to be almost indescribable objectively, but I have attempted to outline them in general in this account, so that if anyone is interested and wishes to do so, he may try them for himself, at least the conchologic part of such technic, if it may be called that.

Quite naturally I would anticipate the criticism from certain quarters that this method, or any approach based on it, is superficial. I readily acknowledge its superficiality, but all beginnings are small. When one remembers that at the present time there are many types of neurotic personality and many neurotic reaction types, and that many of these are poorly understood, it would seem that new approaches should continually be tried in an effort to open more doors and throw more light on the dark closed chambers that hold the ultimate secrets of neuroses.

Is a neurosis essentially constitutional in origin and nature? Is it due primarily to an old traumatic experience? Is it due to libidinous frustration or conflict, or both? Is a neurosis physical in the sense that it may be a biochemical disturbance or an endocrine glandular imbalance?

Or is it the result of ignorance, stupidity and the waste of human energy? Possibly a neurosis may spring from any or all of these, or from none. Its origin remains to be determined.

It is true that the best results in treating neuroses usually are observed in patients whose treatment has been prolonged and intensive. Nevertheless, in certain cases very light treatment, sometimes only a few hours of therapy or one or two interviews, seems to get astonishing results, or may end in favorable changes in personality, or more insight, or better adjustments. The riddles of psychotherapy are not yet entirely solved, and it must still be admitted that analytic, interpretative, inspirational, reeducational and reintegrative approaches all converge on this central problem.

This paper is offered as a "come-on" and "follow-up." It is an attempt briefly to outline some of the general ideas suggested by Dr. Waterman and to indicate in a simple way how they may be applied. If this effort reduces the psychic suffering of one neurotic personality, it is justifiable.

The collection and study of shells as a pastime, or as a professional biologic activity, is understandable and appealing to those who engage in it, but many persons regard it as a limited form of occupation. At the turn of the century, beautiful private collections of shells were common, and there were collectors in almost every community. Few were the parlors which did not boast one or more choice cowries, specimens of *Strombus gigas,* or other striking shells. Interest in this activity, however, began to wane about 1914, and many collections were relegated to attics, barns and storerooms, where they were allowed to gather dust.

As with other hobbies, interest in shells undergoes periods of waxing and waning. In the last few years, the shell has once more come into its own. Genuine attention to conchology is as great now as in any period of the last century. Some part of this renewed interest is due to the more prominent place accorded to biology in the curriculums of public schools and colleges. Many museums have emphasized mollusks in their exhibitions, giving them more space and prominence in displays. Several magazines have called attention to conchology by special numbers, and articles appear from time to time which serve to focus public interest on shells. The last few years have brought revised editions of many standard books on shells and numerous new volumes. Recently the *Saturday Evening Post* published an article about Sanibel Island in Florida, the shell collector's paradise, which was illustrated with splendid colored photographs by Ivan Dmitri. All these have their effect.

Collectors and persons engaged in biologic work do not need to be told about the fascination which mollusks hold for those who take the time and make the effort to become acquainted with that phylum. The uninitiated frequently ask, "What practical use can be made of shells? Why do you take the time they require, or why do you spend money on them?" For every man there is a personal answer to this question. For the physician, especially the psychiatrist, the answer is simple: "I am interested in them myself and besides I find they can be helpful to me in my work."

In the private practice of psychiatry, the patients who are obviously insane and who are unable to live in the ordinary family or community form only a small part of those who consult the psychiatrist. These patients offer relatively few problems to him because the care and treatment which they need can best be given in an institution, either private or maintained by the state or federal government. Many more problems are offered by patients who are not insane, but who are unable for one reason or another to make an adequate adjustment to their environment. There are many persons who are beset temporarily by difficulties for which they cannot find a solution. Often they seek the assistance of a physician trained in the technics of psychotherapy, that is, the treatment of the mental or psychologic ills, from which few, if any, persons are completely free. These patients are sometimes able to carry on most of their customary activities, but they may require reeducation, or may need help in understanding their personality or their situation in order that they may direct their energy toward the ends which will be most useful and socially desirable.

There are a number of methods which may be employed in treating patients who are disturbed. Among these are the forms which depend upon suggestion, to which may be added rest and isolation. The analytic forms of therapy consist of a detailed examination of the patient's past history and present life. Some methods depend on education, stimulation of interest and guidance. In some forms of treatment it may be de-

sirable to break up the patient's habits of thinking in order to lead the way to new paths of reaction and learning. The patient may need to learn self assertion, or perhaps more moderate forms of expression. If fear is the basis of the problem, occupational therapy may help to overcome the lack of self confidence. A great deal of energy may come from within the patient, but guidance of its expenditure is needed in order to develop the inner resources; occupational therapy may be a means of accomplishing this purpose. The patient must learn to help himself. Occupational therapy, such as the collection and study of shells, can be used as one of the avenues of approach to complete this necessary stage of learning and self assistance. Through this form of therapy certain patients have learned to help themselves.

Dr. Kenneth J. Tillotson of the McLean Hospital has noted that although the primary function of psychiatric treatment is to cure and restore, a feeling of accomplishment for the individual patient is also very important and his occupational interests should be considered along with other therapeutic approaches. The form of occupational therapy must be chosen wisely. It should be prescribed after careful consideration of the patient's needs and wishes. Since 1913, occupational therapy has been considered by the American Psychiatric Association as one of the most valuable adjuncts to psychotherapy. The present state of the patient, his earlier interests and education, and his probable future course and mode of living are important factors which determine choice. The type of activity should bear some relation to a realistic existence and it should help to divert the patient's attention from his immediate problems. It should not be so simple that it requires little or no attention.

The patient must be stimulated and guided to a form of activity which will supplant day dreaming and phantasy and which will tend to balance an abnormal mood life, if that is the problem. Galen is believed to have said that occupation is nature's physician, and that statement can be easily understood by observing the effect of occupational therapy on certain disturbed patients.

Some patients need only a little assistance in refocusing their attitudes and attention in states of exhaustion due to excessive nervous fatigue which has been built up after a period of trying situations and great mental distraction. In dealing with these, the psychiatrist must take time to understand the patient, for when psychologic conditions are dealt with, diagnosis cannot be made hurriedly. The laboratory cannot assist, except in a few specific instances, as it does in the diagnosis of physical illness. Under this general category come innumerable patients suffering from "nervous breakdowns," or psychoneuroses, to use a psychiatric term.

The psychoneurosis is almost synonymous with the term "nervous breakdown." It is thought to result from a deep psychologic conflict between the forces of the conscious and unconscious parts of the personality. When the unconscious forces triumph, it can sometimes be said that a psychosis has developed, or that the patient is insane. The factors which bring about these conditions may be any of a large number of possibilities and may have their origin in, or may be precipitated by, overwork, poor adaptation to environment, bad heredity, or lack of knowledge of how to get along with other people. Sometimes the causative factors are so deep-rooted that months of treatment are required before they are apparent to the psychiatrist.

The feelings of some persons, especially when they are young, are often hurt because their psychologic interests and requirements are not gratified and because their talents are not developed. In many cases there is a need for an activity which will aid in maturing their abilities and directing their emotional drives into socially acceptable channels. The participation in an organized hobby such as the collection and arrangement of shells may help them to curb excessive emotional drives for it serves as an additional outlet; also, it may help these patients to pass through periods of psychologic immaturity and reach a point where they have substantially outgrown less mature forms of personality expression. This is not just a theoretic idea; it is a practical possibility. Individuals with problems of personality or adjustment may be observed in every circle of friends, or in nearly every family, or among groups of business associates. Usually the first recommendation of a psychiatrist is that they rest and take things easy until their physical condition is restored to normal, but during this period of rest these patients must be encouraged and reassured on a conscious level so that they will not waste a great deal of energy in worry and introspective thinking. One of the best ways of accomplishing this objective is to interest them in some form of oc-

cupational therapy.

Probably this term calls up a picture of looms for weaving and articles which the patient has made by hand after soul-searing efforts, objects of indifferent use and of questionable quality unless the patient has unusual skill or more than average interest in the project on which he is working. For the intelligent psychiatric patient, the choice of a suitable from of occupational therapy offers many difficulties. I have observed that many patients of this type can often be interested in conchology and that shell-collecting is a form of occupational therapy that is very desirable. In addition, it requires no great specialized skill at the outset nor knowledge that cannot be acquired as part of the activity.

The selection of patients for whom shell-collecting is suitable requires some consideration. Frequently a patient may be moderately interested when the idea is suggested, but the interest will not be sustained except by offering encouragement and a definite plan. Occasionally a psychiatrist will have a patient who has become upset to the point of a "nervous breakdown" by the grueling repetition in his office, store, or other business, of hard work by day and constant worry, much of it unnecessary, by night, so that the time which should be devoted to relaxation is actually used to extend the business day. Such a person needs a change and a leisure occupation. Many of the patients of this type have never learned to play and have never cultivated any interest whatsoever outside their business and family. Among these are the high-geared, hard-hitting, compulsive neurotics who boast that they "have never had a vacation in eighteen years!" There is also the woman whose children are grown up and are now established in separate homes, sometimes at a distance from her. For the first time in her life she finds more time on her hands than she can usefully fill. There is also the patient who, because of a hypersensitive personality, is "not understood" by her family and friends and who finds great difficulty in adjusting herself to her environment. An ideal solution might be to move such patients to a new environment, but if this change were made, their time should be filled in by planned activity so that new problems as pressing as those from which they were removed would not develop. For these and many other types shell collecting is suitable.

The beauty of line, color and form of shells makes a strong appeal to the aesthetic person; the challenge that is offered by identification and classification appeals to the scientifically minded. The preparation of cabinets or containers to house a collection is an appealing phase to the patient who is able to use his hands and tools. Thus, shell collections offer not one but several forms of occupational therapy, all directed toward a single objective. That objective is to help the patient become happier and better adjusted.

I keep about my office a number of my best specimens, lying on shelves or on a table by the patient's chair. In the first few interviews with the patient, no direct reference is made to them. It is not unusual for the patient himself to bring up the subject in the course of the interview, or offer some comment on a particular shell. This display of interest provides an opportunity to ascertain whether the patient has previously been interested in shells. The nature of his remark often indicates whether his reaction to them is positive or negative. If the patient makes no comment, or does not seem aware of the shells, I may, if I think he might become interested, present him with my "Introduction to Conchology." This consists of a cellophane bag containing a small but perfect specimen of some interesting species, *Strombus pugilis*, for example, or some other shell and a history card. He is encouraged to carry the "Introduction" home with him and to do some reading or look up something about shells. On a subsequent visit, the subject of shell-collecting is brought up again. The patient may be given other specimens and may be introduced to new genera or different species of one genus. He may be invited to visit my home to see my personal collection, from which I may give him duplicates.

About all this there is an informal or casual quality so that the patient will not feel that he is having something forced upon him. To insist or urge that he begin to collect shells and learn about them might be the means of building up resistance in his mind which could extend not only to the idea itself but to any therapeutic suggestions the psychiatrist might make. Ideally, the patient should be led subtly to believe that he is himself interested in the idea and that it has originated within his own mind. This suggestion can be accomplished in most instances without much effort. The patient's reaction to

this sort of suggestion is often significant and extremely interesting. The patient often gives himself away. He is off guard, so to speak, so that the offer of shells in a way constitutes a psychologic test of a sort. A special study of resistances, negative reactions and objections is valuable in itself. Too, the way in which negative reactions occur often gives in considerable measure an index of the patient's personality, his character, his underlying problems and his attitudes. In a few cases it has been most revealing and helpful.

In another way, if it is possible to get the patient to talk about the shells, to tell what he sees and to describe what they remind him of, the shells can be used to stimulate free association in patients who accomplish this mental operation with difficulty. It is, in a sense, like a Rorschach test, or modification of it. Actually the patient thereby directs his aggression and spends his energy toward new objects and away from himself, his personal problems and the persons with whom he lives and works. When this method of approach is used, the patient may become more receptive for reeducation and training in new behavior patterns. This particular hobby, as it works out, lends itself well to psychotherapy and serves as an adjunct that furthers the use of suggestion, persuasion, catharsis, and especially transference, which usually becomes improved. It permits the therapist to "become as a child" with the patient; yet it also allows the therapist to assume a parental or teaching role.

The learning, what there is of it, is simple and easy. It can give a strong sense of delight and power. It can give the patient a chance to feel equal with, or superior to, others. Thus, the patient's introspective concern with his internal physical and mental environment may give way to healthier extraversion of his interests, which allows him to regard his problems in a more objective light. Some of the tensions and the bitter, aggressive and often cruel attitudes assume lesser prominence as new interests develop. Often the patient's greatest need is for a happy break in the monotonous repeated round of daily tasks and duties which have allowed no time for relaxation.

With each succeeding visit, the patient is questioned about his shells, if he has begun to collect and learn about them. Definite and detailed suggestions are made each time he visits the office. These, of course, should be suggestions which he can accomplish before the next visit. A book may be suggested which contains information about shells of rare or unusual interest, or he may be encouraged to visit a museum or shell collection. Sometimes he is encouraged to correspond with other collectors, or to exchange duplicates with them in order to enlarge his collection. The reasons for classification are discussed, and new means of displaying the shells are considered. All this requires only a few minutes of the treatment hour, but is well worth while if it helps to sustain interest in the occupational therapy. Officially it need have nothing to do with the formal psychotherapy, though it actually may be a part of it or may reenforce it.

Although shell-collecting does not presuppose specialized knowledge of great extent, it is difficult at first for patients to understand the varieties of shells and realize how many types exist. In overcoming this difficulty, a learning board is especially helpful. It consists of an unpainted wooden frame which is about 2½ inches deep and measures about 15 by 24 inches. The front is a piece of ordinary glass, and the back is a piece of heavy mounting board, preferably tinted green and blue. Typical species of several genera are glued to the mounting board, and a typewritten label is pasted below each one. Some unusual specimen, a starfish, for example, forms the center, and the shells are arranged around it. By frequent reference to this board, the name and shell form soon become associated quite easily in the learner's memory. A sample board may be loaned to the patient, and he is told how he can obtain the material to make his own, if he wishes. Apart from the shells, the cost of the material is negligible.

In many cases, group occupational therapy is more desirable than an individual form, but a combination of the two types is especially desirable. A number of my patients are carrying on a spirited exchange of duplicate specimens and are so much interested in shells that they have little time available to think about their previous problems. One hypochondriacal woman who, a short time ago, regarded nothing as more desirable than a sympathetic ear to which she might tell her real or imaginary personal troubles, now seeks just as assiduously to find someone to whom she may talk about her shell collection. Most listeners find the shells in-

finitely more interesting than an account of the functions of her intestines.

At the Hartford Retreat in Connecticut, a private mental hospital and sanitarium, shell-collecting has been included in the carefully planned program of group activities and is the outgrowth of a loan collection which was exhibited in a recreation hall a few months ago. In the "Chatterbox," the weekly publication of this institution, the growing interest in shells has been noted on several occasions. Here in Boston, the several museums are especially favored by patients who visit them frequently to obtain ideas on arrangement and to verify their own identifications from the collections on display. The University Museum in Cambridge, the Peabody Museum in Salem and the Museum of Natural History in Boston are the best known. There are also a number of smaller museum exhibits in the vicinity of Boston, one at the City Aquarium in South Boston, for example.

Unfortunately, collecting on the beaches in Massachusetts Bay does not yield many specimens, although it is claimed that once there were a number of varieties to be picked up at low tide. For patients who have the time and who can do so, I recommend a collecting trip to Florida or to California. Sanibel Island near Fort Myers is the most prodigal source of semitropical shells that I know. The beach there is literally a carpet of shells. Sanibel is the most southerly of a string of coastal islands running north and south and by reason of its position it is more favorably placed to receive the wealth of shells washed up from midgulf than any of the others, forming, as it does, a sort of coastal barrier. The shallow gulf bottom, the southerly exposure, strong currents and a saline content of water which is favorable to molluscan life make the island unique in this hemisphere. Only the Great Barrier Reef of Australia and Mauritius in the Indian Ocean are said to outrank it in the number and beauty of the shells found on their beaches. Other beaches on the west coast of Florida yield a great many shells, but on the east coast active measures have been taken to rid the beaches of shells because of the swimming, which does not thrive where shells do. All of the West Indies Islands in and near Nassau, Hamilton and Paget's in Bermuda, St. Kitts, Santa Lucia, Trinidad and Cuba are popular objectives for amateur collectors. In California, the Monterey peninsula near Carmel and Pebble Beach, and farther south the region near Santa Barbara and Ventura are also good locations for collectors. These are reasonably accessible and can be reached quickly.

If a patient cannot go to one of the sources, he or one of his friends usually knows someone who may be traveling and who can be persuaded to send or bring back a package of shells. Also they can be ordered from dealers. The cost of shell-collecting can be adjusted to fit the pocketbook, and in many instances material can be obtained gratis from or by friends and relatives. Collecting trips, however, are fine adjuncts to the other forms of therapy, and sometimes a patient who has become interested can be encouraged to go on a short trip to a nearby place or to take a longer journey South for the ostensible purpose of collecting shells when he might be especially resistant to the idea of a journey for the sole purpose of rest or pleasure.

In one way it may be said that neurotics always need a reason or an excuse for everything they do. They use the neurosis as an ego, instead of their will. To some neurotics, shell-collecting, when it is followed as a hobby, seems to develop the functioning of the ego somewhat so that they come to be guided more by this interest and less by symptoms. This change may be observed in patients in whom any strong interest is developed, but it is especially noticeable in shell collectors. One might say that the hobby serves as a focus or focal point around which the energies of the patient, or his budgeting and spending of them, may become organized anew in a fresh, less obviously neurotic and it is to be hoped, a more balanced way. Energy may thus be drawn from the neurotic patterns and may be reconstructed more normally in less neurotic patterns in the patient's life.

A highly desirable feature of shell-collecting as a form of occupational therapy is that it can be carried on independently and requires no special equipment. It is by no means a magic treatment, nor is it a panacea, but I have known a number of patients who have shown great improvement in their external adjustments after becoming interested in conchology. The following brief summary of two cases indicates its value in this respect. I do not offer these characterizations as a scientifically documented report of cases, but rather as sketchy impressions condensed for the purpose of illustration.

REPORT OF CASES

Case 1.—A 60 year old widow lived in a city apartment alone except for her unmarried son. He failed to return home one night, and she was notified the next morning that he had been killed in a motor accident. After his funeral she became agitated and depressed and attempted suicide. After six weeks in a mental hospital, she went home, but stayed in bed weeping and would not see her friends. About this time a box of shells that had belonged to her son was found in the attic. She asked me to take them away. I asked her to tell me about them, and she told of her son collecting them. I suggested that she keep them, add to the collection and give it to a college as a memorial to her son. She was pleased with this idea and began to show interest. This suggestion led to constructive conversations about herself, her life and the uses to which she had put her energy. She developed some insight and more social interest. Her excessive grief subsided, and she began to see friends and to go out, telling others of her plan. She accepted an opportunity to take formal instruction in conchology from a young biologist, who later came to spend his summers with her. These interests led to other social contacts and experiences that ultimately became as normal as they had ever been. She subscribed to a shell magazine, began to buy books on shells and attained far more than amateur's rank as a collector and student. At the age of 65 she is well adjusted, busy and relatively happy, and she has studied and traveled considerably. Her friends say she is a more interesting person than she used to be and they admire her for the way she "took it and snapped out of it." She has had no further depression and recently she told me, "I don't know why it is, but I am as happy as a child when my mind is on my shells." She has promised her collection of shells, now numbering several thousand perfect specimens, to the museum of the department of biology of the university her son attended.

One may say her agitated depression underwent a spontaneous remission, or that she was frustrated and went into an hysterical reaction following the traumatic experience of her son's death, or that her aggression toward her child was sublimated through shells into a semiscientific pursuit and social welfare. Obviously, the shells remained with her as a part of her son that had not been killed. Through them she found him again, in a substitute form, and found herself again. It might be said that this is a working out of an Oedipus situation. It probably is, but the details of her recovery from depression indicated only briefly here, were interesting and striking.

Case 2.—A 49 year old lawyer, who had always worked very hard, had a son in college, a daughter who was a debutante, and a wife who had a social bee in her bonnet. Apart from his checkbook, the family paid little attention to him. He felt neglected and was discouraged. He prided himself on never taking a vacation. "I haven't had one in sixteen years!" he would say.

After a long period of "colitis" that was considered to be of functional or nervous origin he became severely hypochondriacal and went to bed. He developed the fixed idea that he had cancer and prepared to die, as his father did at the age of 50. But nothing happened, except that the family got bored with his illness and ignored him more than before. One day I gave him a box of shells that had just come from Sanibel Island and asked him to unwrap them for me. He did so, and I saw at once that he was interested. I gave him twenty or thirty different species, and the virus took. He began to read and learn and order shells for himself. I told him how interesting and pleasant it was to go on the beach and pick them up at Sanibel Island, and he began to show interest. From then on he was an apt pupil and incidentally he began to talk about himself as he had not talked before. Something had happened. He had "touched bottom." Something was broken. I don't know why, but he stopped being masochistic and stopped expecting his family to pay attention to him and stopped resenting them for not doing it.

One day I told him about the *persona* and *anima*, as Jung described them. I used a shell to illustrate the idea, explaining to him that the *persona* was like the shell and the *anima* was the mollusk living in it. This idea was a revelation to him. He began to grow more aware of himself and his needs as a human being. He began to read and talk about himself and show interest in getting well. He told me of his childhood and his present situation of how he wanted but could not find tenderness and how he needed more outlets for his feelings, especially his aggressive impulses. To make a long story short, he went on with his collection and study of shells, and began to rearrange his life so that more opportunities for personal satisfactions were developed. He took a short vacation alone, the first year, then went South for a month, the next. This trip led to a revival of his old interests in hunting and fishing that had been long neglected and brought him back to membership in a fish and game club, in the administration of which he began to take a very active part. He never speaks of his "cancer" any more. It is now forgotten, I believe, or repressed. And his anxiety has gone elsewhere. He continues his shell-collecting and now has one of the finest collections of Murex shells I have ever seen. He continues to carry on a heavy legal practice and to lead a fairly active social life, but it is better balanced, and the family have become more proud and fond of him, so to speak. They are impressed, in a superficial sort of way, with the change in his personality and his new accomplishments. Recently he said to me something I believe to be significant: "I used to come home in the evening all tired out. All I wanted to do was to have a drink, eat dinner and go to bed. I would often have to dress up, go out and be bored to death. It was hell. Now, no matter how tired I may be, or how full my head is with office work, I find, after working on my shells for two or three hours, that I forget all my business and become as relaxed and refreshed as a boy. It has made a lot of difference to me. I wish I had found it before." His family wishes he had, too, and probably so do the dealers from whom he buys his shells.

The report of these cases illustrates only two of many types. Each case is an individual one that cannot be formulated nor compared with others. The central idea in each instance, I suppose, is to use the shell as a stimulus to elicit a reaction that overcomes the apathy or inhibition of discouragement or conflict. In one sense shells offer an outlet for libido; in another sense they offer an escape from painful reality, internal or external. There are uses for both.

It is needless to speak of the great pleasure a box of shells can give sick, invalid or convalescent patients. They can handle them, draw them, read about them, and study and talk about them endlessly. If "A thing of beauty is a joy for ever," I wish Keats could have seen some shells I know of, before he died. Shells should be a stock item of amusement for children in every sickroom. They are easily disinfected.

Shell-collecting as a cooperative venture may allow several members of a family to participate and may bring about a more sympathetic un-

derstanding between them. Shells appeal to young and old alike, and pleasure and enjoyment may be extracted from them in the same measure as time and interest are given to them. They help to give the patient background and they aid him in cultivating the ability to think independently and to make decisions. It is a mistake to encourage activities that are too fatiguing, but shells are useful in the degree to which the patient's strength and physical reserve allow him to work with them. If he is introduced to shells while a patient in the hospital, he can engage in work with them even more actively after discharge. The single objective should be an ordered and planned activity which will help and encourage the patient and lead the way to new mental health. Records of the progress of the patients should be kept and correlated with the enlargement and improvement of their shell collections, since these are partly dependent on the patient's improvement.

I have not mentioned the land mollusks, but they represent another equally interesting group which can be used in occupational therapy just as well as the sea mollusks. In some cases they are better for occupational therapy since they may be available in regions where the latter are not. I know of few other things which offer so much pleasure to the collector as do shells, with a minimum requirement of money, skill and knowledge. There are few collectors' items which offer so little danger of becoming routine as do shells. It is for that reason that I feel that conchology has a new and undeveloped possibility as a form of occupational therapy.

I do not wish to leave the impression that shell-collecting is suitable exclusively for patients who come to a psychiatrist. On the contrary, convalescent patients, such as those with heart disease, or fractures, or any disorder that limits activity, find them equally interesting. I believe it is an excellent interest and form of study for patients recovering from active tuberculosis, for example. And I have known some alcoholic patients, who drank usually when they were bored, to drink less when they were bored less as the result of becoming interested in shells. Patients suffering from organic illness are, of course, somewhat limited in what they can do for themselves. They are usually limited to material which can be obtained for them and, of course, they miss much of the thrill which comes from collecting by their own efforts. Nevertheless there is still considerable residual pleasure they can experience. It also occurs to me that loan collections of shells with suggestions for their use might be made available by conchologic societies or interested persons to institutions like the Children's Hospital, the cardiac clinics of general hospitals and the social service department of the city hospitals in various parts of the country.

Rare shells might well be used more widely as trophies and prizes, especially for children. Edgar Allan Poe called shells "the medals of creation." I have never seen a child who could not be interested in shells. Children exhibit one constant reaction of special interest: when a child is given a shell, he will place the aperture to his ear, as if listening for the roar of the sea. Children listen in this way without being told that there is a noise in the shell, the noise that times makes, I like to call it.

A WORD ABOUT SHELLS

The mollusks have been described for centuries. In early Greek decoration shells were an important artistic motif. Their outstanding anatomic characteristic is a hard shell, usually external, and a muscular organ, or foot, which has a variety of physiologic functions.

Aristotle in his *Historia Animalium* and in *DePartibus Animalium* described the shells of Mediterranean region. In 1685, Martin Lister wrote a work entitled *Historia Concyliorum*, and in 1799 Cuvier designated the Mollusca as a primary zoologic group. Edgar Allan Poe numbered among his other versatilities a knowledge of shells. His volume published in 1839, *The Conchologist's First Book; A System of Testaceous Malacology*, is an interesting document. It may have been written during the period when he was living on or near Sullivan's Island in South Carolina. In the introduction to the second edition (1840) Poe wrote of his interest in shells as follows:

> Testaceous animals form the principal subsistence of an immense number of savage nations, inhabitants of the seaboard. On the coast of Western Africa, of Chili, of New Holland and in the clustered and populous islands of the Southern seas, how vast an item is the apparently unimportant shellfish in the wealth and happiness of man! In more civilized countries it often supplies the table with a delicate luxury. Nor must we forget the services of the *pinna* with its web, nor of the *purpura* with its brilliant and valuable dye, nor omit to speak of the pearl-oyster, with the radiant nacre, and the gem which it produces, and the world of industry which it sets in action as minister to the luxury which it stimulates.

Excepting the insecta, the mollusks are the largest zoologic division and are estimated to number 60,000 living and 20,000 extinct species. Most of these have been described in the last one hundred and forty years for there were only 2,000 known species in 1800. There are a number of excellent collections in American museums such as those at the Museum of Comparative Zoology of Harvard University, the American Museum of Natural History in New York and the Chicago Academy of Science. They demonstrate a wide range of habitat, being found in salt and fresh water, on land, in trees and in shrubs. They may climb, crawl, swim or burrow in sand, rock or wood. The habitat of a single species may vary at different times of the year.

The chief use of mollusks is for food, although only a limited number of species are so utilized by man, chiefly clams, oysters and scallops. Pearls, of course, have a use in commerce, and the cowries and helmet shells are used in cutting cameos. Paleontologists find fossil shells helpful in determining an era of the earth's age. There are many ethnologic implications of the use of shells, which form a separate field of study.

Probably the rarest shells known are the few specimens of the *Conus gloria maris* or "the glory of the seas." Twelve of these are said to exist. Some of them were obtained from a reef off the Philippines just before the reef disappeared following an earthquake. The Melville cone is very rare also. A few specimens of it have been obtained along the Florida gulf coast.

The value of shells varies greatly. One found at Sanibel Island was sold at a London auction for $2,500. It was a *Voluta junonia*. Today some shells found there sell for as much as $200, and many sell regularly for from $3 to $30. At Sanibel, Florida, shell exhibits are held annually, most of the collectors specializing in a few groups. There is a case of shells from Sanibel Island in the British Museum.

In collecting, the necessary equipment is simple. Cardboard boxes for transfer purposes, a basket or a paper bag, rubber beach shoes and a hat are all that one requires, excepting curiosity and perseverence. At first, a shell collector picks up every specimen, but soon discriminates and passes by all but the most perfect. Although the species known run into thousands, there are a number of families which predominate on the eastern seaboard of North America. They are listed, and a similar list could be prepared for the Caribbean and Pacific regions.

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MASSIVE RESECTION OF THE SMALL INTESTINE

EXCISION OF TWELVE FEET SIX INCHES, WITH RECOVERY

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Resection of a large amount of the small intestine is seldom an elective procedure, for the alternative of allowing the patient to die or of resorting to an extreme measure in an effort to save his life by resection is the alternative that confronts the surgeon. Extensive resection with favorable results may occur less rarely than is generally believed.

As early as 1880 Koeberle[1] reported perhaps the first massive resection of the small intestine; the patient recovered following the removal of 205 cm. of this portion of the bowel. Cases were reported from time to time thereafter, and a number of authors reported studies of collected cases that indicated a fairly high percentage of recovery and warranted the expectation of good functional results. A study by Dorow,[2] made in 1932, brought the number of cases recorded to 97, and in this series he reported a mortality rate of 18.6 per cent.

In 1935 Haymond[3] analyzed 257 collected cases of massive resection of the small intestine

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in patients whose ages ranged from 8 to 76 years and in whom the mortality was considerably higher above the age of 30 years. The percentage of good results in this series of cases was relatively the same for both sexes, but poor results occurred more frequently among women. The common causes were volvulus, strangulated hernia, mesenteric thrombosis, diseases of the mesentery, diseases of the pelvic organs of women, abdominal injuries including war wounds, tuberculosis of the small intestine, and such miscellaneous causes as adhesions and bands, invagination of a polyp, intussusception, gangrenous appendix and gangrenous ileum.

The length of the small intestine varies widely in different persons. The consensus among a majority of investigators is that it is somewhat less in women than in men. Haymond[1] reported that in 1,161 cases the average length was 21 feet 6 inches. The length varies from 18 to 26 feet, the average being 19 feet, according to Sarnoff.[2] This author concluded that one half of the small intestine may be removed without endangering life, but that the removal of 80 per cent proves fatal to animal and man alike. He mentioned 5 cases in which the lengths of the portions resected successfully were 540, 534, 520, 475 and 400 cm., thus ranging from 13 to 18 feet. While the patients in these cases survived the operation, nearly all died shortly afterward. Haymond[1] concluded:

> Discounting the dangers of the operation itself and its concomitant possible complications, a patient can withstand a massive resection of 33 per cent of the length of the small intestine and expect the digestive tract to return to normal function; 50 per cent removal constitutes the upper limit of safety in extensive enterectomy; and resections above 50 per cent must necessarily obtain poorer results even though an exceptional case may be better than predicted.

The removal of lengths measuring 200 cm. or more has long been regarded as extensive resection.

Diarrhea is the most frequent and also the most disturbing postoperative complication, both clinically and experimentally.[1] It must of necessity be controlled by dietary management as it cannot be controlled by drugs. Haymond[1] observed that in his series of 257 cases of extensive enterectomy the mortality rate of 33.5 per cent does not represent the true operative mortality of this spectacular procedure because the tendency is to report only the successful cases. Good results after survival of the operation depend in his opinion on the condition and length of the small intestine remaining, on the disease condition that necessitated the massive resection, and on the feeding of a diet poor in fat, adequate in protein and rich in easily assimilable carbohydrates.

In 1940 Todd, Dittebrandt, Montague and West[3] reported a summary of three periods of metabolic study carried out since 1935 on a man with all but 3 feet of the small intestine removed surgically. They observed that carbohydrates were utilized normally in all three periods. The proteins were not so well absorbed; the percentages for the three periods were 76, 75 and 69. Because of its direct effect on the absorption of calcium, the metabolism of fats was of particular interest. It was learned that more calcium was lost when larger amounts of fats, largely in the form of fatty acids, were excreted in the feces. The excretion of phosphorus tended to parallel the excretion of calcium. In this case tetany was obviated only by a diet very high in calcium and vitamin D (viosterol); the condition was controlled more easily with an intake high in carbohydrates and low in fats.

The case presented is of interest in that there were no immediate premonitory indications of the sudden acute attack characterized only by agonizing pain and in that recovery of the patient was rapid, without incident and accompanied by prompt restoration of normal function following the removal of 12 feet 6 inches of the small intestine.

REPORT OF CASE

W. R., a white farmer aged 36, married, was admitted to the Tampa Municipal Hospital on Nov. 6, 1941, complaining of severe epigastric pain. He had been suffering from a gastric disturbance for approximately fifteen years. In October 1939 he had been operated on in South Carolina for a perforating peptic ulcer. Since that time he had suffered from dyspepsia, which was relieved only after antiacid medication.

Having retired the night before feeling normal in every respect, the patient was awakened at 4 a. m. on November 6 by a knifelike pain in the upper portion of the epigastrium beneath the tip of the ensiform cartilage. En route to an outside toilet he experienced increasingly severe pain and fell unconscious to the ground. His wife found him in a convulsive seizure and with aid removed him to his bed. On regaining consciousness thirty minutes later, he requested a glass of milk, which had often relieved the dyspepsia previously. After drinking a small amount of the milk he again experienced increasingly severe pain and vomited for an hour with the pain unrelieved.

When admitted to the hospital at 7:55 a. m., the patient was suffering agonizing cramplike pain in the epigastric region. The temperature was 96.8 F., the pulse rate was 54, and the respiratory rate was 16. The blood pressure was 126 systolic and 88 diastolic. Physical examination revealed a well developed man with pain as the one outstanding indication of acute illness. Peristaltic sounds could be heard. A tentative diagnosis of perforating peptic ulcer was made. He was given 1/6 grain of morphine and 1/150 grain of atropine at 8:35 a. m.,

and was prepared for surgery. Upon arrival in the operating room he was perfectly comfortable and had no complaint whatsoever; the abdomen was flat and soft, and the pulse was strong. It was concluded that some gastric disturbance was responsible for the acute pain, and he was accordingly returned to his room for observation. Roentgen examination of the abdomen for free air and fluid levels was then made, but gave negative results.

At 3 p. m. the patient again experienced severe epigastric pain. At this time the temperature was 97.8 F.; the pulse rate was 64, and the respiratory rate was 22. He was given 1/6 grain of morphine. He slept until aroused at 6:30 p. m., at which time he was in no pain. Some tympanites below the umbilicus was now noted for the first time, and only an occasional tinkling was audible upon auscultation of the abdomen.

The results of urinalysis were essentially negative. On examination of the blood at 10 a. m. the hemoglobin estimation was 58 per cent; the count was erythrocytes 3,400,000, leukocytes 9,800, polymorphonuclears 88 and lymphocytes 12. The nuclear index determination was 8, and the color index determination was 0.9. At 7 p. m. the count was erythrocytes 4,100,000, leukocytes 25,400, polymorphonuclears 93 and lymphocytes 7. The hemoglobin estimation was 78; the nuclear index determination was 5, and the color index determination was 0.9. It was apparent that a necrotic process was present, but there were no clinical symptoms to indicate its location. The Kahn test gave negative results.

At 7 p. m. the patient suddenly began to show signs of shock and was ordered prepared for surgery. At 8:30 p. m. a soap-suds enema yielded good results. When he was sent to the operating room at 9:30 p. m., his condition was poor. The blood pressure was 80 systolic and 60 diastolic, and the respiratory rate was 20.

At operation, an upper right rectus incision was made. The peritoneal cavity contained about 100 cc. of serosanguineous fluid. A large mass of small intestine, dark black in color, was encountered, and the mesentery supplying this strangulated portion of intestine was likewise black and was pulseless, its appearance resembling that observed in mesenteric thrombosis. There was a large rent in the mesentery, which had contracted, strangulating 12 feet 6 inches (375 cm.) of the small bowel. The strangulated section was composed both of jejunum and ileum. The necrotic portion of the bowel was resected, and after excision only 12 inches of the jejunum remained. An end to end anastomosis was made of the remaining bowel, and the mesenteric sheath was approximated with black silk. Eight grams of sulfanilamide was placed in the abdomen, and a cigaret drain was instituted. The infusion of 2,000 cc. of a 5 per cent solution of dextrose in normal saline was given as a continuous drip during the operation. Nitrous oxide combined with oxygen and ether was the anesthetic used.

The operation was concluded at 11:50 p. m. The condition of the patient was fair. The blood pressure was 90 systolic and 35 diastolic. The pulse rate was 100, and the respiratory rate was 18.

The postoperative diagnosis of strangulation of a large portion of the small intestine with passive congestion and necrosis was confirmed by the pathologic diagnosis. The report of Dr. H. R. Mills, pathologist, follows:

> The specimen from the above patient consists of about 375 cm. (12 feet 6 inches) of small intestine which shows marked passive congestion with the exception of about 15 cm. of healthy tissue at each end of the specimen. Opinion: passive congestion and necrosis of small intestine.

One hour after the operation the patient began to show evidence of shock. The blood pressure was 88 systolic and 58 diastolic; the pulse rate was 120, and the respiratory rate was 22. Seven and one-half grains of caffeine sodiobenzoate was administered. By 2:30 a. m. on November 7 he had fully reacted, and Wangensteen suction was begun. Infusion of 1,000 cc. of a 5 per cent solution of dextrose in normal saline was carried out, and thereafter this treatment was continued every eight hours for five days. At 4 a. m. the patient received 500 cc. of citrated blood by indirect method. In like manner he received 250 cc. on the second postoperative day, 500 cc. on the third postoperative day and 250 cc. on the fifth postoperative day.

On November 8, the first postoperative day, the blood pressure ranged from 88 to 124 systolic and 64 to 84 diastolic; the temperature was 101 F. At 9 p. m. the patient vomited a small amount of thick mucous material. One hour later he was given 7½ grains of caffeine sodiobenzoate subcutaneously, and the dose was repeated every four hours during the night. When necessary, ¼ grain of morphine was given for pain.

On November 10, the third postoperative day, the temperature was 102.8 F., the greatest elevation recorded; the pulse rate was 106, and the respiratory rate was 24. The drain was removed from the wound, and the patient was given 5 Gm. of sodium sulfathiazole. On the following day the Wangensteen suction was discontinued. The patient was allowed a full diet of liquids without milk, which was added two days later. The first bowel movement occurred on this day, and four days later regular bowel movements were established. On November 13, the sixth postoperative day, the temperature was normal for the first time since the onset of the attack. The patient was placed on a soft diet the next day and on a light diet three days later.

The wound healed by first intention, and on November 21, the fourteenth postoperative day, the patient was discharged from the hospital in good condition. During the entire period of hospitalization following the operation his only complaint was slight weakness.

On December 20, four weeks after discharge from the hospital, the patient visited my office. He related that he was having no discomfort, had had no dyspepsia since the operation and was having a daily bowel movement. There had been a gain in weight of 11 pounds. When he again reported to my office on April 4, 1942, he had gained 20 pounds since the operation five months previously. He stated that he felt better than for fifteen years and had normal elimination daily; his appetite was very good and he ate anything he pleased from cabbage and pork chops to sweet potato pie. He was engaged in farm work, plowing and digging fence posts without experiencing inconvenience.

COMMENTS

This case is noteworthy in that resection of 12 feet 6 inches (375 cm.) of the small intestine, more than half its entire length, was a matter of dire necessity rather than of choice.

The patient presented no symptoms or signs typical of a condition requiring such extensive resection, namely, diarrhea, loss of weight, sensitivity of the intestine, anemia, inability to digest fats, or tetany.

Anastomosis was evidently satisfactory; otherwise a fecal fistula would have developed.

There was no evidence of obstruction postoperatively.

Owing to the use of Wangensteen suction, little absorption took place in the gastrointestinal tract for a period of five days after the operation, during which time an infusion of 1,000 cc. of a 5 per cent solution of dextrose in normal saline was carried out every eight hours.

Nutrition was well maintained as evidenced by the patient's gain in weight.

Obviously, this is only a preliminary report, and the ultimate outcome over a period of years is awaited with particular interest.

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MERALGIA PARAESTHETICA

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Meralgia paraesthetica is a disease marked by paresthesia and disturbances of sensation in the anteroexternal surface of the thigh, in the region supplied by the external cutaneous nerve. Meralgia is derived from the Greek words meros, meaning thigh, and algia, meaning pain. Paresthesia is any modification of sensibility and is manifested as a perverted sensation.

This disease, which as late as 1925 was considered rare, is recognized more and more commonly. It was first described by Bernhardt[1] and Roth[2] independently in 1895, and in 1921 Goldstein[3] stated that 135 cases had been recorded in the literature. Since then many series of cases have been reported. In 1938 Ecker and Waltman reported 150 cases and gave some interesting statistics. The incidence of this disease at the Mayo Clinic, they noted, is about 3½ cases in 10,000 as compared with 94 for sciatica and 116 for other forms of peripheral neuritis.

Etiology.—After reading the available literature I have come to the conclusion that there may be many causal factors. While one essayist concludes that the affection is one of the root of the nerve, another is of the opinion that it is a disturbance of the peripheral portion. It has been ascribed to such vague causes as trauma, infections, syphilis, alcoholism, obesity, pregnancy and disturbances owing to a static condition of the foot. The majority of the cases are observed in the fourth, fifth and sixth decades of life, and from 70 to 75 per cent occur in men.

Anatomy.—The external cutaneous nerve is a sensory nerve arising from the second lumbar nerve and having a common origin with the genitocrural nerve, sometimes forming a loop with the third lumbar nerve. It perforates the outer border of the psoas muscle and crosses the iliacus to the notch immediately beneath Poupart's ligament, entering the thigh where it divides into an anterior and posterior branch. The anterior branch becomes superficial about 4 inches below Poupart's ligament and is distributed to the integument along the anterior and outer surface of the thigh. I have given this description of the nerve because it is hard to understand why any of the causes named should affect only the anterior branch of the external cutaneous nerve.

Pathology.—In some cases definite impingement on the roots of the nerve takes place as a result of a spondylitic process in the spine; again, cases have been reported in which the nerve was definitely compressed under the inguinal ligament. There seems to be no constant pathologic process. Frequently posture and weight are faulty. In the series of cases reported by Ecker and Waltman[4] roentgen examination disclosed normal lumbar vertebrae in 38 out of 83 cases, hypertrophic arthritis of the lumbar vertebrae in 25 cases, spina bifida occulta in 7 cases and scoliosis in 4 cases; in 5 cases the primary lesion apparently affected the roots of the nerve within the spinal canal, and in 12 cases there were definite bony changes. Painstaking study is necessary to determine the nature of the pathologic changes in a given case.

Symptoms.—The disease is usually unilateral, and one side is as frequently affected as the other. It manifests itself bilaterally in about 22 per cent of cases, but it usually begins first on one side and later on the other. Often the patients have had symptoms for a year or longer before seeking aid, and I have no doubt there are many who never consult a physician. Numbness is the most common and earliest symptom; tingling, burning, formication, tactile hyperesthesia and pain are other symptoms. The pain is not constant, varies in degree and is sharp and shooting. All these symptoms are aggravated by walking or standing. There is usually slight objective disturbance of sensation, anesthesia or analgesia, and occasionally trophic disturbances in the skin and hair. The subjective phenomena vary with the individual person. Some complain bitterly of the

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hyperesthesia and some of the pain.

Prognosis.—In most cases no specific treatment is required. In about 50 per cent of the cases complete or almost complete relief is attained in a varying length of time that ranges from two to four years. In other words, as Ecker and Waltman[4] reported, "when the symptoms have lasted less than two years, the chances are two to one that they will disappear spontaneously within another two years." Cases have, however, been reported which lasted as long as thirty-five years, and many cases have been so intractable as to require operative interference.

Treatment.—In a large percentage of cases all that is necessary is for the physician to explain to the patient that he thoroughly understands the condition and to advise him that he may take one of the simple analgesics, such as aspirin, from time to time as necessary. When the symptoms demand active treatment, the physician may resort to injection, neurolysis, resection of the nerve or even laminectomy. Resection is the standard operation, and the results usually are completely satisfactory.

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DISEASES OF THE GALLBLADDER AND THEIR RECOGNITION

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Diseases of the gallbladder are among the diseases most commonly occurring within the abdomen. Statistics relating to findings at necropsy indicate that as high as 60 per cent of the gallbladders examined may reveal pathologic changes. It is estimated that fully 10 per cent of the adult population past forty years of age have gallstones. These figures vary with the source of autopsy material and should be accepted as the minimum, not the maximum, for cholecystitis catarrhalsis is not often recognized grossly except by the expert.

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The incidence of cholecystitis and cholelithiasis is considerably higher in industralized countries than in those chiefly agricultural. The oriental and the Negro races are relatively free of involvement of the gallbladder. Diseases of this organ are about three times as prevalent in women as in men. Pregnancy appears to increase this ratio; from 75 to 80 per cent of the women operated upon for gallstones have been pregnant.

When one considers the diseased gallbladder, it is needless to make distinction between cholecystitis and cholelithiasis for each is a phase, or part of a sequence, denoting degrees of irritation, the end result of which is likely to be metaplasia. Gallstones were found in 95 per cent of the cases of primary cancer of the gallbladder reported by Siegert.[1]

To illustrate to process better one need only consider the physiologic functions of the gallbladder. Its general functions are not dissimilar to those of the adjacent structures of the digestive tract, namely secretion, absorption, motor activity and storage capacity. Each of these properties is essential to a normal functioning of the gallbladder. Any disturbance of function may result in alterations of the chemical constituents or motor activity, thereby setting up and perpetuating a pathologic process.

The exciting cause of disease of the gallbladder is always bacterial infection. This organ, like other viscera possessing a mucous membrane, is subject to catarrhal, serofibrinous, suppurative and phlegmonous types of inflammation.

There are several routes by which infection may reach the gallbladder:

1. By way of the general circulation from sources over the entire body to the hepatic artery, thence to the liver and through secreted bile to the gallbladder.

2. From the alimentary tract by way of the portal vessels.

3. From the intestines by a direct ascending infection of the common duct.

4. Infection by extension from an adjacent inflamed viscus.

5. By the numerous chains of connecting lymphatics.

There are two predisposing factors to infection of the gallbladder, (1) motor disfunction, which may result in stasis and direct chemical ir-

ritation of the mucosa, and (2) disturbance of cholesterol metabolism. Both of these factors are observed in a high percentage of cases of pregnancy, especially in the latter months and the early postpartum period.

The gallbladder possesses unusual powers by which it concentrates bile; cystic bile may be from five to ten times more concentrated than bile obtained from the bile ducts. The degree of concentration is increased when the relative emptying time is delayed as during the latter part of the term of pregnancy when the gallbladder is sluggish and emptying is greatly delayed. A rise in the cholesterol content of the blood, or hypercholesteremia, occurs and is accompanied by a corresponding rise in the cholesterol content of the cystic bile. Bile acids in sufficient concentration tend to maintain this suspension of cholesterol in the cystic bile. The bile salts and bile cholesterol are in turn dependent in part for their concentration on the normal functioning of the cells of the liver. The evidence is insufficient to warrant the conclusion that the toxemias of pregnancy may produce enough damage to the parenchymal cells of the liver to diminish the supply of bile salts in the presence of a high cholesterol content and to produce a precipitation of the cholesterol and the formation of stones.

It is interesting, however, to note Potter's observations in his report of 390 cases of cesarean section. In these cases the gallbladders were manually examined; 75 per cent of them were fully distended and showed evidence of biliary stasis. Examination of the bile removed from these organs by direct puncture revealed a high cholesterol content, and the acid-cholesterol ratio in 62 per cent of the entire series was low. Potter[2] concluded that disorders of cholesterol metabolism and motor dysfunction or stasis are the forerunners of biliary diseases in pregnant women.

It should be of interest to observe future studies of disease of the gallbladder with special reference to the role certain female hormones may play. As previously mentioned, the disease is more prevalent in women, and pregnancy increases this ration; also, the disease often manifests itself in the forties near the climacteric.

The diagnosis of diseases of the gallbladder should be made with greater ease today than in the past because of improved diagnostic facilities, such as roentgen and electrocardiographic studies and laboratory examinations. These aids throw light on the pathologic changes in the gallbladder and on the manner in which they may be associated with disorders of other organs.

It is with relative frequency that one observes disease of the gallbladder associated with diseases of the heart. Congestive heart failure predisposes to this disease in two ways, by restricting the motion of the diaphragm and by facilitating infection of the biliary system because of the intestinal congestion present. Disease of the gallbladder may mimic coronary thrombosis. I have seen definite electrocardiographic changes caused by gallstones. This phenomenon was probably due to a nervous reflex mechanism rather than a toxic manifestation. The differential diagnosis of coronary thrombosis and disease of the gallbladder may be a difficult problem during the first twenty-four hours of the illness.

In diseases of the gallbladder many clinical problems arise. Women patients sometimes give one a perfect history of a menopausal syndrome and improve on estrogen therapy. After a reasonable lapse of time, it becomes apparent that the patient is receiving no further benefit even with increased dosage of estrogens. A careful study of cases of this type often reveals a coexisting disease of the biliary system, and, when it is properly cared for, the symptoms attributed to the menopause disappear.

A few years ago the gallbladder received considerable attention as an important factor in foci of infection. This factor remains important today, and the far reaching effects of diseases of the gallbladder on all tissues of the body should not go unrecognized.

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MEDICAL OFFICERS RECRUITING BOARDS

Every one who has read the Journal of the American Medical Association, or the June issue of Medical Economics, should be familiar with the mechanics of the Procurement and Assignment program. To review briefly, each county has been asked to form its own Procurement and Assignment committee. This committee has a responsibility of dual importance, to determine which members of its medical society can be spared for military duty, and which ones are essential to the needs of the community. In its decision the committee must realize that the practice of medicine cannot continue as usual, but rather that some program of rationing of medical care is in order. This responsibility should be taken seriously by the local committee. In some instances a committee has reported that practically all physicians in its community are available; in others, that no one can be spared. Obviously a medium should be reached by carefully weighing each individual case. A local committee should not take into consideration a physician's physical condition, as his fitness is determined by an official examination.

A meeting of representatives of the Procurement and Assignment Service, the Surgeon General's office, the Adjutant General's office, and the Selective Service Headquarters was held in Washington April 24, for the purpose of streamlining the methods of obtaining a commission. There was created at this time a Medical Officers Recruiting Board for every state in the Union. The Board for Florida is located at Camp Blanding.

The Medical Officers Recruiting Board obtains the names of those men who have been declared available by their own local committees, from the State Chairman of the Procurement and Assignment Service. The Board then contacts these physicians and offers them a commission, which it has the authority to issue in the rank of first lieutenant and captain to those below the age of 45. When the volunteer is between the ages of 46 and 55, or when he is qualified to apply for the rank of major, the Board completes the application and sends it to the Surgeon General for final action. The State Selective Service Headquarters is extending every cooperation in this program. It accepts the ruling of the local Procurement and Assignment committees in classifying physicians who are registrants.

Information has been received that the method of obtaining physicians for the armed services through the Procurement and Assignment Service is, as a whole, not producing the number of physicians necessary. Although several hundred names have been given the Medical Officers Recruiting Board in Florida, to date, June 29, only 36 physicians have been commissioned by this Board.

It has been repeatedly emphasized that through the Procurement and Assignment Service the physicians of this country have been given the opportunity to settle their own problem, that of providing sufficient medical personnel for the armed services, and of seeing that local communities are not stripped of all medical service. No other group in the country has been given a similar opportunity.

It was pointed out by Mr. Paul V. McNutt in his address to the house of delegates at the A.M.A. convention (reprinted in the June 20 issue of the J. A. M. A.) that if this method of obtaining the necessary medical personnel for the armed services does not work, and work soon, a more vigorous program will have to be adopted. There is no question as to what he meant.

It is hoped that every physician will take stock of his own situation, remembering that the fate of the practice of medicine, as we know it, is at stake, and that we are at WAR, a war that is going to require the wholehearted and complete support of every person in the country, and a war which, if lost, will destroy life, liberty and the right to the pursuit of happiness.

INACTIVE PHYSICIANS URGED TO RE-ENTER PRACTICE TEMPORARILY

Elsewhere in this issue appears an editorial from the Journal of the American Medical Association stressing the need for physicians for the armed forces, a need which must be supplied without depleting medical service for civilians. In a letter recently received by Dr. T. Z. Cason, Chairman of our Association's Committee on Medical Postgraduate Course, the American Medical Association pointed out that one way in which to help solve this problem is to urge able-bodied inactive physicians to resume practice during the war, thus releasing others for military service.

It is realized that in many instances these inactive physicians may feel in need of a refresher course before again entering practice. The Committee on Medical Postgraduate Course of the Florida Medical Association is willing to make available such graduate instruction should a number of physicians desire it. The following letter was mailed to secretaries of county medical societies in an effort to determine how many physicians in this class are willing to resume active practice. It is reproduced here for the benefit of readers of the Journal who failed to secure the information from the letter.

June 29, 1942.

Dear Doctor:

Your Committee on Medical Postgraduate Course has been asked to determine the need for a refresher course "to prepare physicians, who may have been inactive in the field of general practice, to assume community responsibilities in the present emergency." In order to determine the need for such a course it will be necessary for the Committee to know the number of physicians in the state who desire postgraduate work.

If a sufficient number of Florida physicians desire a refresher course, your Committee will immediately make the necessary arrangements as an aid to physicians who are willing to get back into active practice. If a refresher course is put on, it will probably be held in Jacksonville in connection with the Duval County Hospital. Adequate and reasonable maintenance may be secured within two or three blocks of this hospital.

In order that necessary arrangements may be made by your Committee, and that I may have the necessary information to forward to the American Medical Association, Council on Medical Education and Hospitals, in the quickest possible time, won't you please submit the names of doctors in your area who are not in the active practice of medicine and who are willing to resume practice on a temporary basis.

Sincerely yours,

(Signed) T. Z. CASON, *Chairman*
Committee on Medical Postgraduate Course.

PUBLIC MUST AID DOCTORS IN MEETING NATION'S WAR NEEDS

Preventable illness and unreasonable demands on the time of physicians must be reduced to a minimum because of the urgent need for physicians for the armed forces, Paul V. McNutt, chairman of the War Manpower Commission, declared in a special statement for The Journal of the American Medical Association on "The Procurement of Physicians." The statement, published in the June 27 issue, is as follows:

On June 8 I described to the American Medical Association at its Atlantic City meeting the acute need for physicians for the military services. I pointed out how far the recruitment of physicians lagged behind expected quotas. In conclusion I stated bluntly the fact, which could not have been evaded by any analysis, that unless voluntary recruitment progressed more rapidly some more rigorous form of selective service must be resorted to.

Those facts were necessary in order to permit the medical profession to diagnose its own case. And the case is urgent; physicians are members of what is probably the most indispensable of all professions. Despite the harshness of the facts and the bluntness with which I had to state them, I felt that the profession should be informed.

In fairness to the recruitment record of many of our states, it seems in order at this time to give the profession some further idea of how its problem is distributed. The failure of a sufficient number of physicians to volunteer for military service is not spread thinly over the whole country. There is an acute lag in certain populous states. Other states have supplied nearly all that they should supply.

We need more than twenty thousand additional physicians by the end of this year. But eight states—New York, Illinois, California, Pennsylvania, Massachusetts, New Jersey, Michigan and Ohio—should account for nearly sixteen thousand of that shortage.

By contrast, sixteen states have fewer than a hundred physicians to go to reach the total number they should supply. In order not to deplete unduly available medical service in those areas, we are asking that the Medical Officers Recruiting Boards be withdrawn and that further enlistments from those areas be then discouraged except in the case of the men under 37 in the urban areas. Those states are Alabama, Arizona, Delaware, Idaho, Louisiana, Mississippi, Montana, Nevada, New Mexico, North Dakota, South Carolina, South Dakota, Utah, Vermont, Wyoming and Virginia.

The acute problem for the next few months for those states is an equitable distribution of medical service within their borders. This will avoid the necessity for any consideration of plans to allocate doctors from other states to meet civilian needs.

More than one hundred and thirty thousand physicians have returned their registration forms to the Roster for Scientific and Technical Personnel. Those forms are now being processed. When that work is complete we shall be able to give the profession a more comprehensive report on the relation of available medical service to wartime needs.

The seriousness of the deficit in the number of physicians available for armed forces should not be underestimated. The need must be met. It will be met by one method or another. Neither must we underestimate the serious drain this puts on available medical services in civilian communities. It will mean long hours and hard work—sacrifices which will multiply the deep debt that every community owes to its physicians.

It cannot be met simply by multiplying the hours of the physicians who are left. There will be a real need to

exercise every possible means for minimizing unnecessary medical services in order that the real needs may be met.

It is my belief that the lag in recruitment has been due chiefly to the fact that the individual physician has not realized the genuine urgency of the need. Measures must be taken which will bring those home to every individual. This means that there will have to be some education of the general public. Preventable illness must be reduced to a minimum. Unreasonable demands on the physician's time must be reduced to a minimum. Thus only may available medical service adequately cover the needs.

An editorial in the same issue of The Journal stated:

Elsewhere in this issue appears a statement by Mr. Paul V. McNutt, chairman of the War Manpower Commission, under which the Procurement and Assignment Service for Physicians, Dentists and Veterinarians functions, relative to the urgent need for physicians for the armed forces at this time. Mr. McNutt recognizes the indispensable character of the physician for both military and civilian needs. He makes clear that eight states—New York, Illinois, California, Pennsylvania, Massachusetts, New Jersey, Michigan and Ohio—must supply most of the physicians needed for the armed forces at this time. Some of the states have already supplied so many physicians in proportion to their total medical population that recruitment in those states is to be discontinued now or in the near future.

The medical profession cannot be accused of failure to play its part in any way in relationship to the war effort. Every one who is participating in the recruitment of physicians recognizes that there have been what are now called innumerable "bottle necks" to be cleared away from time to time as the effort has progressed. More than one hundred and thirty thousand physicians have already returned the registration blanks sent out by the National Roster of Scientific and Technical Personnel. These replies have been coded, and punch cards have been made for them. Any physician who has failed to receive an enrolment form from the National Roster should write at once to the National Roster of Scientific and Technical Personnel, in care of War Manpower Commission, 916 G Street Northwest, Washington, D. C., requesting that an enrolment form be sent to him.

Shortly there will be sent to every physician who indicated that service in the United States Army Medical Department would be his first choice or his second choice a letter as follows:

WAR MANPOWER COMMISSION
Procurement and Assignment Service
Washington
Procurement and Assignment Service for
Physicians, Dentists and Veterinarians

Dear Doctor:

You have indicated your willingness to serve the Nation in this great emergency. The Procurement and Assignment Service of the War Manpower Commission now calls on you to enter the Service. Please apply at once for a commission. You have been selected from among the available physicians in your community by a process that is believed to be fair and impartial.

Complete and mail the enclosed post cards immediately. The Office of the Surgeon General or his representative will provide the necessary application forms and authorize the time and the place for your physical examination.

Do not take any definite action regarding your practice until you receive specific instructions from the War Department. Each physician who is commissioned is routinely allowed fourteen days to wind up his affairs after receipt of orders from the War Department.

The rapidity of recruitment now in effect makes this communication necessary and requires your full cooperation. Please do not delay.

Sincerely yours,
Frank H. Lahey, M.D.
Chairman, Directing Board
Procurement and Assignment Service

Enclosures
No. 92 6/22/42

With this letter will be enclosed two postal cards, which will secure prompt action in relationship to receipt of application forms and proper notification of the action taken in the responsible agencies in Washington.

The needs of the armed forces for physicians are immediate; unquestionably those needs will be met. Physicians who are under 37 years of age and who have been classified by the Selective Service are susceptible to restudy of their situation and reclassification as these needs become more and more urgent. The medical schools, hospitals, public health departments, industrial concerns, in fact every agency utilizing the services of physicians, must cooperate by restudying the men classified as essential, so that only those who are actually essential in the most restricted sense of that word will be retained. All others must be made available as needed for the service of the nation in the armed forces.

The Procurement and Assignment Service for Physicians, Dentists and Veterinarians was established to aid in the proper assignment of physicians in times like these to the tasks for which they are best fitted. Already this agency has been of immense value in the principles that have been adopted relative to the maintenance of medical education, hospital service and civilian health, as well as the study and evaluation of men for the Army and Navy medical departments. As the needs become more acute and the number of men available less, their task assumes increasing importance. The War Manpower Commission is now the agency under which the Procurement and Assignment Service functions. Through the activities of various subcommittees such problems as maintenance of essential staff members for hospitals, the determination of adequate medical service for the civilian population needs, of adequate personnel for urban, county, state and national health departments and the needs of industry are being given special consideration. The medical profession, as Mr. McNutt has repeatedly emphasized, has in these activities shown the way to scientific study and allocation of manpower in this emergency.

EMERGENCY MEDICAL SERVICE

Dr. Gilbert Osincup, president of the Florida Medical Association, who has been chairman of the Division of Health and Housing of the Florida State Defense Council since its inception, has been appointed Chief of the Emergency Medical Service for the State of Florida, as a reserve officer in the United States Public Health Service, assigned to the O. C. D.

The duties of this office consist in organizing emergency medical care in all its phases. These include care of persons who may be injured as a result of enemy action or sabotage, protection of the health and welfare of the citizens of the state, and the providing of adequate medical care for civilians. In order to carry out the duties of this office, Dr. Osincup has given up the private practice of medicine for the period of the emergency.

Due to the large number of doctors who are joining the armed services, there is a shortage of physicians in some communities in Florida. This shortage is going to grow progressively worse as more and more doctors are taken out of practice. In order to build up a pool of physicians who might be willing to leave their home communities and practice medicine in places where the need is great, either on a full time governmental basis,

part time, or in the private practice of medicine, we would appreciate an expression from such men of their willingness to serve in this capacity. If you feel you would be useful in this field of medical defense, and are not essential to the proper care of citizens in your community, please write Dr. Osincup, Box 3231, Orlando, giving details as to age, type of practice you can do, and any other pertinent information.

DR. HANSON AGAIN NAMED STATE HEALTH OFFICER

Dr. Henry Hanson has been appointed state health officer for Florida, effective July 15. The appointment was made by Governor Spessard L. Holland after he conferred with the officers of the Florida Medical Association and studied the qualifications of Dr. Hanson and other physicians who were available for this post.

In December 1909 Dr. Hanson was called to take charge of the State Board of Health Laboratory in Jacksonville, and continued as bacteriologist until May 1916. In May 1927 he rejoined the State Board of Health as district health officer but the following month he became director of sanitation of the Jacksonville City Board of Health. On September 15, 1929, Dr. Hanson was appointed state health officer and served in that capacity until December 1935.

At intervals between his association with the State Board of Health he traveled extensively in South America for the Rockefeller Foundation, the Pan American Sanitary Bureau and the United States Public Health Service, and he is a specialist in tropical diseases. His many friends in Florida will rejoice to learn that he is again the state health officer, a post for which he is exceptionally well qualified.

The members of the State Board of Health are Dr. Herbert L. Bryans, Pensacola, president, Dr. Robert B. McIver, Jacksonville, and Mr. William Parr, Tampa.

SCIENTIFIC PROGRAM, 1943

Have you conducted original research or experimental work? Do you wish to report your findings to the State Convention in April, 1943? If so, make application at once for a place on the program to Dr. Herbert E. White, Chairman of the Committee on Scientific Work, Box 1018, Jacksonville. Dr. White has announced that no general letter calling for papers will be mailed to the membership this year.

A. M. A. MEETING

The 93rd annual convention of the American Medical Association, held in Atlantic City, was well attended; 8,238 physicians registered, which exceeded all expectations. Gasoline rationing on the Eastern Seaboard, it seemed, might interfere seriously with the annual session, but fortunately the interest among the members of the profession was so great that physicians poured in by every possible means of conveyance. There was an unusually large attendance from Latin America; 140 physicians registered from other American nations.

The Florida Medical Association was officially represented in the House of Delegates by Drs. Edward Jelks of Jacksonville and Meredith Mallory of Orlando. The following 67 members of our Association registered at the national meeting:

Bay Pines: Francis J. Mantell. *Crestview*: R. E. Enzor. *Daytona Beach*: Richard Reeser, Jr., Morris B. Seltzer. *Ft. Lauderdale*: Russell B. Carson. *Fort Myers*: William H. Grace. *Gainesville*: J. Maxey Dell, Jr. *Jacksonville*: Edward Jelks, Louie Limbaugh, W. McL. Shaw. *Maitland*: Eugene L. Jewett. *Miami*: I. H. Agos, Nelson M. Black, Herbert Eichert, Tom R. Gammage, J. Raymond Graves, Winston F. Harrison, Carlos P. Lamar, Claude G. Mentzer, E. Sterling Nichol, William T. H. Pallister, Bascom H. Palmer, Max Pepper, C. Larimore Perry, Gerard Raap, Wiley M. Sams, Ralph S. Sappenfield, E. Clay Shaw, John W. Snyder, Robert T. Spicer, William H. Watters, Paul B. Welch.

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BIRTHS

Dr. and Mrs. Ernest Bostelman of Fort Myers announce the birth of a son, Ernest, Jr., on May 13.

Dr. and Mrs. Aaron Z. Oberdorfer of Jacksonville announce the birth of a son on June 19.

Dr. and Mrs. Frank M. Woods of Jacksonville announce the birth of a daughter on June 19.

Dr. and Mrs. F. G. King of Jacksonville announce the birth of a daughter on July 4.

Dr. and Mrs. Thomas F. Nelson of Jacksonville announce the birth of a son, Thomas Finn, Jr., on June 26.

STATE NEWS ITEMS

The American Congress of Physical Therapy will hold its twenty-first annual scientific and clinical session September 9-12, 1942, at the Hotel William Penn, Pittsburgh, Pa. For additional information, address the Congress, 30 North Michigan Avenue, Chicago, Ill.

Dr. Henry C. Dozier of Oklawaha, past president of the State Medical Association, on request of the Ocala *Banner*, has agreed to write a regular column each week. Dr. Dozier's colleagues will be interested in this new activity.

Dr. Theodore F. Hahn of DeLand gave an interesting talk on "Chemistry in Medicine and its Progress" at the weekly Rotary Club luncheon recently.

Dr. H. Marshall Taylor of Jacksonville was elected president-elect of the American Laryngological, Rhinological and Otological Society at the meeting held in Atlantic City the early part of June. The other Florida doctors attending this meeting were: S. B. Forbes, Tampa, and W. T. Hotchkiss, Miami Beach.

Doctors from Florida who attended the meeting of the American College of Radiology, held in Atlantic City, June 10, were: J. C. Dickinson, Tampa; O. O. Feaster, St. Petersburg; John N. Moore, Ocala; Gerard Raap, Miami, and W. McL. Shaw, Jacksonville.

Dr. Nelson M. Black of Miami and Dr. Shaler Richardson of Jacksonville attended the annual meeting of the American Ophthalmological Society, held at Hot Springs, Va., in June.

Doctors from Florida in attendance at the meeting of the American Heart Association in Atlantic City, June 5 and 6, were: Louie Limbaugh, Jacksonville; Max Pepper, Miami; William H. Bernstein, M. A. Kugel and C. F. Roche, Miami Beach; James A. Bradley, St. Petersburg, and Joseph Halton, Sarasota.

At the meeting of the American Diabetes Association, held in Atlantic City June 7, the following Florida doctors were in attendance: James A. Bradley and R. J. Needles of St. Petersburg and Carlos P. Lamar of Miami.

Dr. Fred W. Rankin, Lexington, Ky., retired as a member of the Medical Advisory Board of the Office of Civilian Defense upon being called to active service in the Office of the Surgeon General of the Army. Dr. John T. O'Rourke, dean of the University of Louisville School of Dentistry, Louisville, Ky., has been designated to fill the vacancy on the Board.

Dr. J. N. Moore of Ocala was granted a Fellowship in the American College of Radiology at the Atlantic City meeting in June.

The Florida Board of Examiners in the Basic Sciences will hold its next examination October 31, 1942, at the University of Florida, Gainesville. The Florida law requires that all applications be made at least fifteen days prior to the date of the examination. All requests for application blanks should be sent to Dr. John F. Conn, secretary, Stetson University, DeLand, Florida.

Members of the State Association who wish to read papers at one of the scientific sessions of the annual convention to be held in St. Petersburg, April 12, 13 and 14, 1943, are urged to file applications at once with Dr. Herbert E. White, chairman of the Committee on Scientific Work. Dr. White has announced that no general letter calling for applications will be mailed to the entire membership of the Association. All applications should be addressed to Dr. Herbert E. White, Box 1018, Jacksonville.

Dr. Wilson Lancaster of Kissimmee is taking special work in surgery at the Harvard University Postgraduate School.

JOHN LEE SUMMERLIN

Dr. J. Lee Summerlin of Gainesville, who for the last seventeen years has been one of Alachua County's leading eye, ear, nose and throat specialists, died on the evening of May 31 at his summer home on Lake Santa Fe.

Dr. Summerlin was born February 16, 1889, in Adel, Ga., the son of Mr. and Mrs. Perry Summerlin. He received his medical training at Emory University School of Medicine, from which he was graduated in 1916. He practiced in Georgia until in 1925 when he moved to Gainesville.

At the time of his death, Dr. Summerlin was president of the Alachua County Medical Society, a member of the Florida Medical Association, the American Medical Association, the Kiwanis Club, the Masonic Lodge, president of the Gainesville Golf Association, and a member of the First Methodist Church.

He is survived by his widow, Mrs. Myrtle Summerlin; two sons, Glenn and Winston, students of medicine at the University of Maryland; a brother, Dr. Maxey Summerlin of Athens, Ga., and a sister, Mrs. Martha LaGrange of Ocala.

The following resolution of sympathy was recently adopted by Dr. Summerlin's colleagues, the members of the Alachua County Medical Society:

Man stands with humble spirit and heart beats that are barely perceptible in the presence of the death of one with whom they were so closely associated in every day life. He gropes and strives to make articulate his desire to comfort and assist his colleagues who are so deeply grieved that he has been summoned to make his future home with the Supreme Physician.

We are not selfish in our grief; we desire to not only share our grief with his devoted wife and sons, but by our actions and words, comfort them in the hours of loneliness. So, we the members of the Alachua County Medical Society join with the members of our profession throughout the nation, and particularly with those of the state of Florida, pause and extend a word of simple but sincere sympathy to the bereaved family.

The loss they have suffered is keenly felt, just as it understood the fineness of Lee Summerlin, for he was one to be truly loved; the husband of a fine and noble woman and the father of two sons who have proved that the influence of their devoted father was a dominating factor in the exemplary lives they are living.

Therefore, Be It Resolved that the members convey these words of sympathy to the family of Dr. J. Lee Summerlin, that a copy of this resolution be sent to the newspaper and that a page of the minute book of the Alachua County Medical Society be used for inscribing these resolutions.

D. T. Smith
John E. Maines, Jr.
J. Maxey Dell
Committee

COMPONENT COUNTY SOCIETIES

DADE

The Dade County Medical Society held its June meeting on the evening of the 2nd, at the Jackson Memorial Hospital. The meeting was devoted to a discussion of business matters.

DE SOTO-HARDEE-HIGHLANDS-CHARLOTTE-GLADES

The regular monthly meeting of the DeSoto-Hardee-Highlands-Charlotte-Glades County Medical Society was held June 16 at the Simmons Hotel, Wauchula, where a fried chicken dinner was enjoyed.

Attending the meeting were: Drs. G. H. McSwain and H. P. Bevis of Arcadia, Dr. I. W. Chandler of Avon Park, Dr. H. V. Weems of Sebring, Dr. Paul Bird of Tampa, Drs. M. C. Kayton, B. D. Spears and M. A. Collier of Wauchula.

DUVAL

The Duval County Medical Society met on the evening of June 2 at the Friday Musicale Auditorium. Drs. Sidney Halpern and L. Y. Dyrenforth presented a paper on "Leprosy; a Consideration in Secondary Changes of the Hand." A business meeting followed the scientific discussion, after which refreshments were served.

PINELLAS

On June 5 the Pinellas County Medical Society held a dinner meeting at the Shrine Club. The program consisted of two discussions: "Bronchoesophagoscopy" by Dr. M. O. McNay, and "Procurement and Assignment" by Dr. W. M. Davis.

The second meeting of the Society was held on the evening of June 19 in the office of Drs. Feaster, when a round-table discussion of topics of interest was held. Dr. O. O. Feaster acted as moderator.

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OBSTETRICS—Two Weeks Intensive Course will be offered starting September 21st. Three Weeks Course starting August 10th. Informal Course every week.

OTOLARYNGOLOGY—Two Weeks Intensive Course will be offered starting September 14th. Clinical and Special Courses every week.

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ABSTRACT DEPARTMENT

Members of the Florida Medical Association who have had articles published in out-of-state medical journals are requested to forward such journals or reprints to Box 1018, Jacksonville, for abstracting in this department.

NONHEMOLYTIC FAMILIAL JAUNDICE, CARITHERS, HUGH A., JR., JACKSONVILLE, J. PEDIAT. **19**:817-822 (DEC.) 1941.

The author reviews the pertinent literature on nonhemolytic familial jaundice and cites an interesting case in point, the "M" family. He relates in detail the history of the hospital admissions of two members of this family and states that this is the first report of such a case in pediatric literature.

In his discussion he directs attention to the investigations of Dameshek and Singer, and suggests that their observations would indicate that inheritance of this condition is probable. He also refers to the work of Malloy and Lowenstein who described a strain of rats which have hereditary jaundice.

The author concludes that in the cases he reports the two children had nonhemolytic familial jaundice because:

1. Jaundice was constantly present.
2. It was pronounced and could not be classified as latent.
3. The children nevertheless grew well and remained in good health.
4. Their spleens were never palpable.
5. There was no anemia, and reticulocytosis occurred at a normal rate.
6. There was no spherocytosis nor was there bilirubin or urobilinogen in the urine.

In a chart he presents the differentiation between nonhemolytic and hemolytic jaundice, with special reference to the two cases cited.

SUBCUTANEOUS IMPLANTATION OF TESTOSTERONE IN MALE EUNUCHOIDISM, LAMAR, CARLOS P., MIAMI, CLIN. MED. **49**:66-68 (MAR.) 1942.

The author reports a case of hypogonadism in a man of the eunuchoid type treated by means of implantation of testosterone pellets. The response to treatment by implantation seems to be earlier, more sure and more prolonged than by injection methods. The author reports the adoption of intramuscular rather than subcutaneous implantation in order to avoid loss of the testosterone by sloughing and breaking down of the wound. The results reported are significant and the illustrations valuable.

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ATYPICAL SYMPTOMATOLOGY IN CHRONIC NEPHRITIS, NEEDLES, ROBERT J., ST. PETERSBURG, UROL. & CUTAN. REV. **46**:95-99 (FEB.) 1942.

By means of two detailed and well presented case reports the author directs attention to the fact that often the first symptoms in chronic nephritis are those suggesting gastrointestinal disease. Instead of the early uremic symptoms of headache, vertigo, swelling of the face, hands or feet, pallor, anorexia, nocturia, polyuria, epistaxis and shortness of breath, the first symptoms may be those of gastric dysfunction even to the point where malignant disease of the gastrointestinal tract is considered in the diagnosis.

In this clinical report the discussion of the possible mechanisms involved brings to mind the earlier reports of another Florida physician who interested himself in the relationship between gastrointestinal symptoms and pathologic changes of the urogenital tract, the work done by Welch some years ago with dogs. By means of inflatable balloons in the gut, he measured reflex changes in the intestines as various lesions of the kidneys and ureters were produced.

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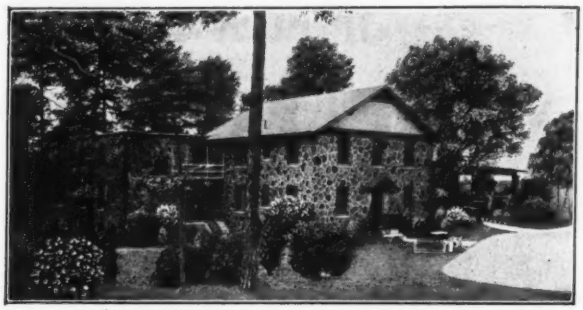

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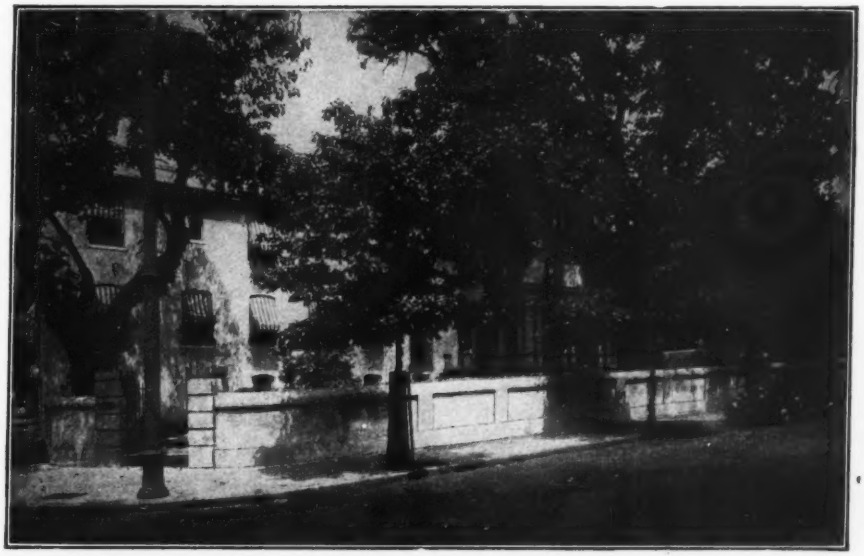

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BOOKS RECEIVED

Acknowledgment of books received will be made in this column and this will be deemed by us a full compensation to those sending them. A selection will be made for review as expedient.

SURGERY OF THE AMBULATORY PATIENT. By L. Kraeer Ferguson, A.B., M.D., F.A.C.S., Lieut. Commander, Medical Corps, U. S. Naval Reserve; Assistant Professor of Surgery, University of Pennsylvania, Philadelphia. With a Section on Fractures by Louis Kaplan, A.B., M.D., F.A.C.S., Associate in Surgery, University of Pennsylvania, Philadelphia. An experience of some years in treating the surgical lesions which occur in ambulatory patients has indicated the need for a text devoted to this branch of surgery. Surgery of the ambulatory patient is the surgery performed more often by the young physician and the general practitioner. Fabrikoid. Price, $10. Pp. 923, with 645 illustrations. Philadelphia, London, Montreal: J. B. Lippincott Company, 1942.

METHODS OF TREATMENT IN POSTENCEPHALITIC PARKINSONISM. By Henry D. von Witzleben, Elgin State Hospital, Elgin, Ill. Dr. von Witzleben's monograph is another contribution to our knowledge and a progressive step in the control of postencephalitic Parkinsonism. Cloth. Price $2.75. Pp. 164. New York: Grune and Stratton, Inc., 1942.

BODY MECHANICS IN HEALTH AND DISEASE... Third Edition, Completely Revised. By Joel E. Goldthwait, M. D., F. A. C. S., LL. D., Member of Board of Consultants, Massachusetts General Hospital, Boston; Lloyd T. Brown, M. D., F. A. C. S., Instructor in Orthopedics, Harvard Medical School; Loring T. Swaim, M. D., Instructor, Orthopedic Surgery, Harvard Medical School and John G. Kuhns, M. D., F. A. C. S., Assistant in Orthopedic Surgery, Harvard Medical School, Cambridge. With a Chapter on the Heart and Circulation as Related to Body Mechanics by William J. Kerr, M. D., F. A. C. P., Professor of Medicine, University of California School of Medicine, San Francisco. Cloth. Price, $5. Pp. 316, with 121 illustrations. Philadelphia, London, Montreal: J. B. Lippincott Company, 1941.

CHRONIC ARTHRITIS. By Karl Goldhamer, M. D., Associate Roentgenologist, St. Mary's Hospital and Quincy X-Ray and Radium Laboratories, Quincy, Ill. X-ray therapy of chronic arthritis. Cloth. Price, $2. Pp. 131, with 24 illustrations. Quincy, Ill.: Radiologic Review Publishing Company, 1941.

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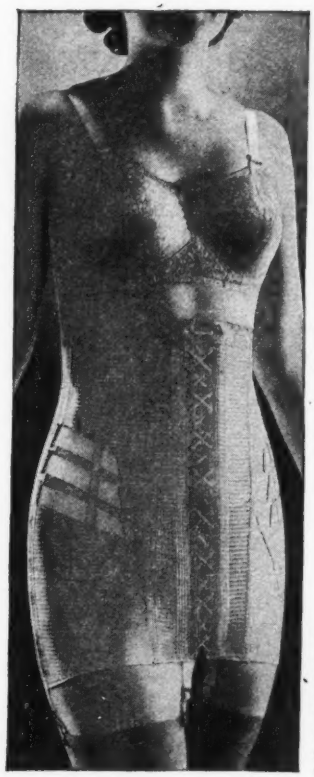

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**Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154. Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60*

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DUVAL COUNTY AUXILIARY

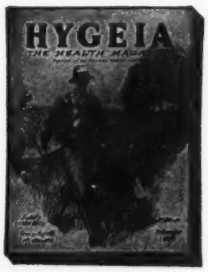
The Woman's Auxiliary to the Duval County Medical Society held its annual meeting in the home of Mrs. Lucien Dyrenforth on St. Johns Avenue.

Officers and chairmen of standing committees gave interesting reports of their work during the year. The president's report summarized the various activities of the auxiliary for the past year: the defense committee's first aid class and blanket drive, the generous donations to the Red Cross of money and layettes, the booths maintained for Christmas seals and cancer control drives, the samples gathered for the Colored Tuberculosis Hospital, the subscriptions obtained for Hygeia magazine, the health talks in various rural schools and the making of sandwiches every month for the Medical Society meetings.

The chairman of the nominating committee, Mrs. Victor Hughes, read her report and the following officers were elected for the coming year: President, Mrs. Raymond King, re-elected; vice president, Mrs. Ernest Veal; secretary, Mrs. Leo Wachtel, and treasurer, Mrs. W. H. McCullagh, re-elected.

Mrs. King introduced the speaker for the afternoon, Otis Owens of the Treasury Department, United States Secret Service. Mr. Owens showed a talking movie, "Know Your Money," sponsored by the Government in cooperation with the police department in a drive against the passing of counterfeit money.

Delicious refreshments were served from a beautifully appointed table, centered with an artistic arrangement of fruit and vegetables. Mrs. S. R. Norris presided at the punch bowl, assisted by Mrs. F. W. Krueger, Mrs. Victor Hughes and Mrs. E. W. Veal.



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STATE AND SECTIONAL MEETINGS

SOCIETY	PRESIDENT	SECRETARY	ANNUAL MEETING
Florida Medical Association	Gilbert S. Osincup, Orlando	Shaler Richardson, Jacksonville	St. Petersburg, Apr. 12-14, 1943
Florida Medical Districts:			
A—Northwest	Courtland D. Whitaker, Marianna	Stewart Thompson, Jacksonville	Tallahassee, Oct. 8, 1942
B—Northeast	L. Y. Dyrenforth, Jacksonville	" " "	Ocala, Oct. 15, 1942
C—Southwest	Edgar Watson, Lakeland	" " "	Sarasota, Oct. 22, 1942
D—Southeast	Lloyd J. Netto, W. Palm Beach	" " "	Miami, Oct. 29, 1942
Alabama Medical Association		D. L. Cannon, Montgomery	Birmingham, Apr. 20-22, 1943
Georgia, Medical Assn. of	H. B. Searcy, Tuscaloosa	E. D. Shanks, Atlanta	Atlanta, May 11-14, 1943
Florida—	James A. Redfearn, Albany		
Section, Am. College Phys.	R. H. Knowlton, St. Petersburg	Kenneth Phillips, Miami	St. Petersburg, Apr. 11-12, 1943
Dental Society, State	I. W. Shields, Miami	W. P. Wood, Jr., Tampa	Tampa
Derm. and Syph., Soc. of	Wiley M. Sams, Miami	Lauren M. Sompayrac, Jacksonville	Jacksonville, July 12, 1942
East Coast Medical Association	T. C. Kenaston, Cocoa	I. M. Hay, Melbourne	Melbourne, 1942
Hospital Association	Mr. Ernest G. McKay, Tampa	Mr. R. L. Martin, St. Petersburg	Tampa, June 13, 1942
Industrial Surgeons, Assn. of	Frank D. Gray, Orlando	Richard H. Walker, Orlando	St. Petersburg, Apr. 11-12, 1943
Medical Postgraduate Course	Turner Z. Cason, Jacksonville	Chairman	Jacksonville, June 22-27, 1942
Nurses Association, State	Mrs. M. Stetson, St. Petersburg	Mrs. Phyllis Leonard, St. Augustine	Orlando, November, 1942
Ophthal. & Otol., Soc. of	Shaler Richardson, Jacksonville	C. E. Dunaway, Miami	St. Petersburg, Apr. 11-12, 1943
Pathological Society	L. Y. Dyrenforth, Jacksonville	Iva C. Youmans, Miami	St. Petersburg, Apr. 11-12, 1943
Pediatric Society	Warren W. Quillian, Coral Gables	G. N. Leonard, Miami Beach	St. Petersburg, Apr. 11-12, 1943
Pharmaceutical Association, State	Mr. Emmett L. Brown, Palatka	Mr. R. Q. Richards, Ft. Myers	Tallahassee, May 19-21, 1942
Public Health Association	W. H. Pickett, Jacksonville	Lloyd N. Harlow, Jacksonville	Miami, Fall, 1942
Radiological Society	John N. Moore, Ocala	Walter A. Weed, Orlando	St. Petersburg, Apr. 11-12, 1943
Railway Surgeons' Association	Frank D. Gray, Orlando	W. C. Page, Cocoa	St. Petersburg, Apr. 11-12, 1943
Tuberculosis & Health Assn.	Mr. E. M. Newald, Orlando	Mrs. C. R. Whitaker, Eustis	Tampa, May 18-19, 1942
Chattahoochee Valley Med. Assn.	Herbert E. White, St. Augustine	Robert B. McIver, Jacksonville	Postponed
Gulf Coast Clinical Society	G. G. Oswalt, Mobile, Ala.	C. L. Rutherford, Mobile, Ala.	Mobile, 1942
S.E. Sec., Am. Cong. Phys. Ther.	John J. McGuire, Pensacola	Kenneth Phillips, Miami	
Southeastern Surgical Congress	Alton Ochsner, New Orleans	B. T. Beasley, Atlanta	Louisville, Mar. 8-10, 1943
Southern Medical Association	M. Pinson Neal, Columbia, Mo.	Mr. C. P. Loranz, Birmingham	Richmond, November, 1942
Suwannee River Medical Society	L. J. Arnold, Jr., Lake City	T. H. Bates, Lake City	Lake City, Dec. 1942

COMPONENT SOCIETIES BY DISTRICTS

	SOCIETY	PRESIDENT	SECRETARY	MEETING DATE	MEMBERS Total	MEMBERS Paid	COUNCILOR
A	Bay	M. F. Parker, M.D. Panama City	J. O. Barfield, M.D. County Health Unit Panama City		10	9	
A	Escambia *Santa Rosa*	A. L. Stebbins, M.D. State Bd. of Health Pensacola	William S. Randall, M.D. 1419 E. Cervantes St. Pensacola	2nd Tuesday 8:00 P.M.	52	51	A-1-43 C. D. Whitaker, M.D. Marianna
A	Franklin-Gulf	Thos. Meriwether, M.D. Wewahitchka	J. R. Norton, M.D. Port St. Joe	3rd Tuesday Odd Months	5	4	
A	Jackson *Calhoun*	W. R. Wandeck, M.D. Marianna	R. N. Joyner, M.D. Marianna	2nd Tuesday 7:30 P.M.	12	100%	
A	Walton-Okaloosa	A. G. Williams, M.D. Lakewood	R. B. Spires, M.D. DeFuniak Springs	3rd Thursday 8:00 P.M.	6	100%	
A	Washington-Holmes	N. J. Dawkins, M.D. Vernon	B. W. Dalton, M.D. Vernon		6	100%	
A	Columbia *Baker, Hamilton*	Harry S. Howell, M.D. Blanche Hotel Annex Lake City	Thomas H. Bates, M.D. Blanche Hotel Annex Lake City	1st Monday 7:30 P.M.	11	100%	
A	Leon-Gadsden-Liberty-Wakulla-Jefferson	G. H. Garmany, M.D. Tallahassee	B. A. Wilkinson, M.D. Telephone Bldg. Tallahassee	Quarterly 3:00 P.M.	40	36	A-2-44 William D. Rogers, M.D. Chattahoochee
A	Madison-Suwannee	Eustace Long, M.D. Madison	E. D. Thorpe, M.D. Madison		8	100%	
A	Taylor *Dixie, Lafayette*	J. C. Ellis, M.D. Perry	Chas.A. O'Quinn, M.D. Perry	Last Friday 8:00 P.M.	5	100%	
B	Alachua *Bradford, Gilchrist, Union*	R. E. Summitt, M.D. 122 No. Pleasant St. Gainesville	A. T. Cobb, M.D. 331 W. University Ave. Gainesville	2nd Wednesday 7:30 P.M.	29	21	B-3-43 L. Y. Dyrenforth, M.D. Jacksonville
B	Duval *Clay, Nassau*	Ernest B. Milam, M.D. 508 Greenleaf Bldg. Jacksonville	Frank G. Slaughter, M.D. 2033 Riverside Ave. Jacksonville	1st Tuesday 8:15 P.M.	192	100%	
B	Marion *Levy*	B. S. Stutts, M.D. Anderson Bldg. Dunnellon	T. Hartley Davis, M.D. 202 Commercial Bank Ocala	3rd Thursday 12:30 P.M.	29	28	
B	Putnam	J. Worth Brantley, M.D. Grandin	C. M. Knight, M.D. Palatka	2nd Tuesday Even Months 7:00 P.M.	10	9	
B	St. Johns	W. D. Webb, M.D. 220 St. George St. St. Augustine	Charles C. Grace, M.D. East Coast Hospital St. Augustine	3rd Tuesday 8:30 P.M.	12	100%	
B	Brevard	G. T. von Colditz, M.D. Route 1 Cocoa	I. K. Hicks, M.D. Melbourne	3rd Wednesday	11	10	B-4-44 Meredith Mallory, M.D. Orlando
B	Lake *Sumter*	Louis R. Bowen, M.D. Box 905 Eustis	R. H. Williams, M.D. State Theater Bldg. Eustis	1st Thursday 12:30 P.M.	20	17	
B	Orange *Osceola*	Spencer A. Folsom, M.D. 319 Exchange Bldg. Orlando	E. E. Hitchcock, M.D. 7 E. Colonial Dr. Orlando	3rd Wednesday 8:30 P.M.	89	80	
B	Seminole	C. L. Park, M.D. 515 1st Nat. Bank Bldg. Sanford	O. L. Barks, M.D. Sanford Clinic Sanford	2nd Monday 7:00 P.M.	13	100%	
B	Volusia *Flagler*	W. C. Pay, M.D. 221 W. Rich Ave. DeLand	R. L. Miller, M.D. 258½ S. Beach St. Daytona Beach	2nd Tuesday 7:30 P.M.	46	39	
C	Hillsborough	B. W. Lowry, M.D. 1019 Citizens Bk. Bldg. Tampa	James S. Grable, M.D. 811 Citizens Bk. Bldg. Tampa	1st Tuesday 8:00 P.M.	105	97	C-5-44 Leland F. Carlton, M.D. Tampa
C	Manatee	L. W. Blake, M.D. Bradenton	M. M. Harrison, M.D. Professional Bldg. Bradenton	3rd Tuesday 7:00 P.M.	14	100%	
C	Pasco-Hernando-Citrus	J. T. Bradshaw, M.D. San Antonio	G. R. Creekmore, M.D. Brooksville	2nd Thursday 7:00 P.M.	13	100%	
C	Pinellas	M. A. Nickle, M.D. 503 Coachman Bldg. Clearwater	O. O. Feaster, M.D. 166 Fourth Ave. N. E. St. Petersburg	1st and 3rd Fridays 6:30 P.M.	106	100%	
C	Sarasota	A. Lamar Matthews, M.D. Sarasota	Stanley T. Martin, M.D. 361 Main St. Sarasota	2nd Tuesday 8:30 P.M.	19	15	
C	DeSoto-Hardee-Highlands-Charlotte-Glades	L. W. Martn, M.D. Sebring	G. H. McSwain, M.D. Arcadia	2nd Tuesday 8:00 P.M.	19	18	C-6-43 Edgar Watson, M.D. Lakeland
C	Lee *Collier, Hendry*	Harvie J. Stipe, M.D. 312 Pythian Bldg. Fort Myers	A. Louis Girardin, M.D. 309 Pythian Bldg. Fort Myers	3rd Tuesday 7:30 P.M.	17	16	
C	Polk	J. R. Boulware, M.D. Box 367 Lakeland	Edgar Watson, M.D. Box 1021 Lakeland	2nd Wednesday 1:00 P.M.	61	56	
D	Palm Beach	James R. Sory, M.D. 616 Harvey Bldg. W. Palm Beach	D. W. Martin, M.D. 618 Comeau Bldg. W. Palm Beach	4th Monday 8:00 P.M.	68	66	D-7-43 Lloyd J. Netto, M.D. West Palm Beach
D	St. Lucie-Okeechobee-Indian River-Martin	R. C. Boothe, M.D. Box 408 Ft. Pierce	Adrian M. Sample, M.D. Box 176 Ft. Pierce	3rd Thursday 8:00 P.M.	18	100%	
D	Broward	Elbert McLaury, M.D. 210 Hollywood Bk. Bldg. Hollywood	O. C. Brown, M.D. 915 Sweet Bldg. Fort Lauderdale	4th Wednesday 8:00 P.M.	41	100%	D-8-44 Elbert McLaury, M.D. Hollywood
D	Dade	Thomas O. Otto, M.D. 704 Huntington Bldg. Miami	Herbert Eichert, M.D. 537 duPont Bldg. Miami	1st Tuesday 8:30 P.M.	342	282	
D	Monroe	Harry C. Galey, M.D. 532 Fleming St. Key West	W. R. Warren, M.D. 511 Eaton St. Key West	1st Sunday 9:00 P.M.	5	100%	

*Supervise and aid until organized separately.

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